



ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes

Biology

Microbiology

Pharmaceutical Science and Technology

Clinical and Community Pharmacy

Provided by

Institut Teknologi Bandung, Indonesia

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A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for ¹	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) ²
Program Studi Sarjana Biologi	Undergraduate programme in Biology	ASIIN	ASIIN until 30.09.2021	10
Program Studi Sarjana Mikrobiologi	Undergraduate programme in Microbiology	ASIIN	ASIIN until 30.09.2021	10
Sarjana Farmasi, Sains dan Teknologi Farmasi	Bachelor of Pharmaceutical Science and Technology	ASIIN	ASIIN until 30.09.2021	09, 10
Sarjana Farmasi, Farmasi Klinik dan Komunitas	Bachelor of Clinical and Community Pharmacy	ASIIN	ASIIN until 30.09.2021	09, 10
Date of the contract: 23.01.2020 Submission of the final version of the self-assessment report: 29.06.2020 Date of the audit (online): 22.09. – 24.09.2020				
Peer panel: Prof. Dr. Gert Fricker, University of Heidelberg PD Dr. Alois Palmetshofer, University of Wuerzburg Prof. Dr. Robert Hänsch, Technical University Braunschweig Natasha Era Radita, Pharmacist, Novartis Indonesia Najogi Sitinjak, Student, Universitas Gadjah Mada				

¹ ASIIN Seal for degree programmes;

² TC: Technical Committee for the following subject areas: TC 09 – Chemistry; TC 10 – Life Sciences

Representative of the ASIIN headquarter: Rainer Arnold	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014 Subject-Specific Criteria of Technical Committee 09 – Chemistry as of 29.03.2019 Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of 28.06.2019	

B Characteristics of the Degree Programmes

a) Name	Final degree (original)	b) Areas of Specialization	c) Corresponding level of the EQF ³	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Bachelor in Biology	Sarjana Sains Biologi / Bachelor of Science in Biology	-	6	Full time	no	8 Semester	144 CSU / 200 ECTS	1948, Once a year (August)
Bachelor in Microbiology	Sarjana Sains Mikrobiologi / Bachelor of Science in Microbiology	-	6	Full time	no	8 Semester	144 CSU / 200 ECTS	2004, Once a year (August)
Bachelor in Pharmaceutical Science and Technology	Sarjana Farmasi, Sains dan Teknologi Farmasi / Bachelor of Pharmaceutical Science and Technology		6	Full time	no	8 Semester	144 CSU / 200 ECTS	1947, Once a year (August)
Bachelor in Clinical and Community Pharmacy	Sarjana Farmasi, Farmasi Klinik dan Komunitas / Bachelor of Clinical and Community Pharmacy		6	Full time	no	8 Semester	144 CSU / 200 ECTS	2006, Once a year (August)

³ EQF = The European Qualifications Framework for lifelong learning

For the Bachelor's degree programme Biology, (UPB) Institut Teknologi Bandung (ITB) has presented the following profile in the Self-Assessment Report:

“The undergraduate programme in Biology is designed as a broad (general) biology degree programme to produce well-rounded, trainable biologists. While there is some specialization during the students' final research project, students are expected to graduate as general biologists, distinguished from graduates of other programmes by their strong understanding in core biology concepts and related skills and competences. The Biology body of knowledge encompasses all living systems, all levels of organization, and major integrating principles (e.g., genetic continuity, growth and development, reproduction, interaction and interdependence, and evolution). The programme educational objectives and learning outcomes are expected to equip graduates with life skills required to develop and adapt to the wide spectrum of possible occupations and future challenges.”

For the Bachelor's degree programme Microbiology, (UPMb) Institut Teknologi Bandung (ITB) has presented the following profile in the Self-Assessment Report:

“Education at the Undergraduates Programme in Microbiology (UPMb) SLST ITB includes (1) basic knowledge about microbial cells and bioprocess, (2) skills in using scientific methods, and (3) knowledge about microorganisms application to solve problems in the society to improve their quality of life. In general, the UPMb SLST ITB is designed to be completed within four academic years. It starts with strengthening basic sciences in the first year followed by introductory knowledge of microbiology related sciences in the following year. Students are exposed to more-detailed knowledge and skills, especially in food/industry, health and environment in the following years through various courses involving field excursion, visits to industries and internship. Scientific and social skills exercises are embedded within courses among the years. At the end of the programme, an individual research work is given, and students are expected to finish their study by conducting presentation in a seminar, a written report (thesis) and comprehensive examination.”

For the Bachelor's degree programme Pharmaceutical Science and Technology (UPPST), and the Bachelor's degree programme Clinical and Community Pharmacy (UPCCP), Institut Teknologi Bandung (ITB) has presented the following profiles in the Self-Assessment Report:

“The confinement of pharmacy practice to mainly the production and procurement of drugs is no longer relevant. Nowadays, pharmacists also have a major role in ensuring rational drug use. As a response to the changing field of pharmacy, since 2006, the School of Pharmacy ITB offers two undergraduate study programmes with different specialisations, i.e., the Undergraduate Programme in Pharmaceutical Science and Technology (UPPST) and Undergraduate Programme in Clinical and Community Pharmacy (UPCCP).

Despite changes in pharmaceutical science and practice over the last five years, the aims of the undergraduate programmes are still considered relevant to the current situation. Both study programmes aim to produce creative and innovative graduates with good communication, critical thinking, and managerial skills, as well as capability in anticipating and solving problems. These traits and abilities are crucial determinants for the competitiveness of the graduates in today's global job market. The undergraduate programmes also expected their graduates to act within the rule of conduct, be fully aware of their responsibility and able to work in a team.

Graduates from both the UPPST and UPCCP are expected to contribute to the process of drug development, which ranges from the discovery of active compounds to the development of dosage form, as well as ensuring rational drug use. Therefore, graduates may take part in new drug development, preclinical and clinical studies, drug manufacturing, distribution, as well as administration and dispensing.”

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpage Ba Biology: <https://biologis1.sith.itb.ac.id/en/>
- Webpage Ba Microbiology: <https://mikro.sith.itb.ac.id/en/?lang=en>
- Webpage Ba Pharmaceutical Sciences and Technology: <https://english.fa.itb.ac.id/uppst/>
- Webpage Ba Clinical and Community Pharmacy: <https://english.fa.itb.ac.id/upccp/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The auditors base their assessment of the learning outcomes as provided on the websites and in the Self-Assessment Reports of the four Bachelor's degree programmes under review.

The auditors refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Biology and Microbiology as defined by ITB correspond with the competences as outlined by the SSC. They come to the following conclusions:

Graduates of the Bachelor's degree programme Biology (UPB) should understand the basic biological process and be capable of applying the scientific and technological methods of the biological sciences. In addition, graduates should acquire relevant scientific knowledge in the different biological areas such as botany, zoology, biochemistry, biostatistics, molecular biology, cell biology, and related natural sciences (chemistry, physics). They learn to work in a team and to carry out practical work in a laboratory and in the field.

The programme is designed as a general biology programme with some specialization during the student's final research project. Nevertheless, students are expected to graduate as general biologists, distinguished from graduates of other programmes by his/her strong background understanding in core biology concepts and related skills and competences. The programme educational objectives and learning outcomes are expected to equip the graduates with life skills required to develop and adapt to the wide spectrum of possible occupations. UPB graduates have a broad occupational area. Their occupational profile includes researcher, teacher/lecturer, entrepreneur, consultant, mass media practitioner etc., and they could work in industry, academia, or government.

The intended learning outcomes of the Bachelor's degree programme Microbiology focus on using microbiological concepts and the organisation and function of organisms at the molecular level. This includes that graduates should acquire fundamental biology-relevant knowledge of mathematics and natural sciences, understand the evolution and metabolism of cells and microorganisms, the relationship of cell structure and function, microbial systems in terms of diversity and dynamic ecosystems, and the impact of microorganism in life. In addition, students should acquire the ability to work practically in a laboratory and to apply microbiological lab equipment and methods. These learning outcomes are designed to correspond with the requirement of the job market, and refer to the American Society for Microbiology – ASM.

Graduates in microbiology mainly aim at finding a suitable occupation in the following fields: health, pharmacy, food, agriculture, veterinary, aquaculture, mining, water treatment, and waste management.

The peers refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences and the SSC of the Technical Committee Chemistry as a basis for judging whether the intended learning outcomes of the Bachelor's degree programme Pharmaceutical Sciences and Technology (UPPST) and the Bachelor's degree programme Clinical and Community Pharmacy (UPCCP), as defined by ITB, correspond with the competences as outlined by the SSC. They come to the following conclusions:

Graduates of both pharmacy programmes should acquire a profound knowledge of biology and chemistry and gain methodological competences in the pharmaceutical sciences. They should also be able to carry out practical work in laboratories and to handle samples and organisms. In addition, students should be familiar with the safe handling of chemicals and pharmaceuticals and have knowledge of safety and environmental issues as well as the associated legal regulations.

UPPST aims at producing graduates equipped with generic and specific skills in pharmaceutical sciences and technology. These specific skills include the ability to participate in new drug development, drug formulation, preparation of pharmaceutical dosage forms, good manufacturing practices, good laboratory practices, quality evaluation, and assurance, as well as efficacy and toxicity evaluation. The programme has the goal of covering all aspects related to pharmaceutical products from discovery and invention, processing and development of raw material to the pharmaceutical preparation. In other words, UPPST focuses on product-oriented knowledge to fulfil the needs of expertise in research, product development and quality control of drugs and other pharmaceutical products.

UPCCP is designed to equip its graduates with generic and specific skills in clinical and community pharmacy. Students should acquire strong specific competencies in counselling patients, drug information and distribution, compounding and dispensing, pharmaceutical economics, and public health, particularly in disease prevention and health promotion, prevention of drug abuse and misuse, as well as drug monitoring. The focus on clinical and community pharmacy implies that graduates should contribute to improve the health services in the community by working together with doctors and nurses in order to achieve the effective and successful treatment and recovery of the patients (patient-centred pharmaceutical care).

Finally, graduates of both pharmacy programmes should have adequate competencies in oral and written communication skills, be adaptive to the development of pharmaceutical sciences, and have adequate English proficiency as well as a social and academic attitude.

Most of the graduates from the Bachelor of Pharmacy programmes will directly continue their studies to obtain a professional degree as a pharmacist (apothecary) before applying for a job. The licensure in Indonesia is regulated through a standardized competency exam. Thus, the aim, learning outcomes, and curriculum of UPPST and UPCCP are designed to meet the Indonesian Pharmacists Competency Standards (Standar Kompetensi Apoteker Indonesia, SKAI). Nevertheless, there are some job opportunities for graduates of the Bachelor's programmes. They can work in the pharmaceutical industry, biotechnology companies, hospitals and community pharmacies, as manager in drug stores, and analyst in medical laboratories or public institutions.

In addition to the subject-related qualification objectives, students of all four Bachelor's programmes should be capable of working autonomously as well as in a team-oriented manner, and be able to conduct research activities. Furthermore, they are able to solve subject-relevant problems, can present their results, have trained their analytical and logical abilities, and have an awareness of possible social and ethical effects of their actions.

During the course of their studies, the students have acquired communicative and language skills, and have developed a strategy for life-long learning.

The auditors hold the view that the objectives and intended learning outcomes of both degree programmes under review are reasonable and well founded.

In summary, the auditors are convinced that the intended qualification profiles of the four undergraduate programmes under review allow students to take up an occupation, which corresponds to their qualification. The degree programmes are designed in such a way that they meet the goals set for them. The peers conclude that the objectives and intended learning outcomes of the degree programmes adequately reflect the intended level of academic qualification and correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences (UPB and UPMb) and the SSC of the Technical Committee 09 – Chemistry (UPSST and UPCCP).

The peers appreciate that ITB aims for high standards as to give their graduates good chances in the national job market as well as a good starting point to transfer to other academic programmes in order to complete a Master and maybe even a PhD-programme. The excellent and manifold job opportunities are one of the strong points of the reviewed undergraduate programmes at ITB.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Reports

Preliminary assessment and analysis of the peers:

ITB awards a Bachelor of Pharmaceutical Science and Technology Degree to students registered in UPPST, and Bachelor of Clinical and Community Pharmacy to students registered in UPCCP who have successfully met all the requirements, including completing a research-based final project. The name of the degree programme reflects the respective focus of the undergraduate programmes, which is on the development, production, and analysis of pharmaceutical products for UPPST, and patient-oriented pharmaceutical practice for UPCCP.

Equally, the names of the Biology and the Microbiology undergraduate programmes appropriately reflect the respective content and main focus of the programmes.

The auditors confirm that the English translation and the original Indonesian names of all four Bachelor's degree programmes correspond with the intended aims and learning outcomes as well as the main course languages (Indonesian and English).

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpage Ba Biology: <https://biologis1.sith.itb.ac.id/en/>
- Webpage Ba Microbiology: <https://mikro.sith.itb.ac.id/en/?lang=en>
- Webpage Ba Pharmaceutical Sciences and Technology: <https://english.fa.itb.ac.id/uppst/>
- Webpage Ba Clinical and Community Pharmacy: <https://english.fa.itb.ac.id/upccp/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The Biology and the Microbiology undergraduate programmes are offered by the School of Life Sciences and Technology (SLST), while both pharmacy programmes are offered by the School of Pharmacy (SP).

All four Bachelor's degree programme under review are designed for four years and at least 144 credit semester units (CSU) need to be achieved by the students (this is equivalent to approximately 200 ECTS points).

The courses in the first two semesters (common year, 36 CSU) convey basic knowledge of natural sciences and languages (Indonesian and English). The first-year students are students of the School of Pharmacy or the School of Life Sciences and Technology. At the end of the common year, students are given the opportunity to choose the undergraduate programme they wish to attend. The final placement in the undergraduate programme is based on the student's preference as well as GPA and class capacity.

Courses on the different subject-specific sciences are offered from the third to the eighth semester. During the eight semesters, students must also complete the undergraduate thesis. Some of the obligatory courses, such as religion and ethics, Pancasila and civic education, and sports are university requirements and need to be attended by all students at ITB.

Regular students take 18 credits in every semester, while outstanding students may take up to 24 credits. Therefore, outstanding students are enabled to complete the Bachelor's degree in less than 4 years. However, this case is rare (only 5 to 10 % of the students apply for this option) since the workload of the undergraduate programmes is rather high anyway and designed for a four-year study programme. As the peers learn during the audit, students can apply for the fast track option if they have no C-grade (or below) and a GPA above 3.5. Fast track students can directly continue with a Master's programme and special scholarships are available for them in the Master's programme. The maximum period for the completion of the common first year programme is two years while it is six years for the whole undergraduate programme.

For undergraduate students from the routes of SNMPTN or SBMPTN (via national selection exams), the maximum tuition fee is Rp 12.500.000 (719 Euros) per semester. For undergraduate students from the routes of independent selection (Seleksi Mandiri), the tuition fee is Rp 25.000.000 (1.438 Euros) per semester, with an additional of Institution Development fee of Rp 25.000.000 (paid once by new students). For students in the international class (for example in the School of Pharmacy), the tuition fee is Rp. 30.000.000 (1.726 Euros) per semester.

Approximately 15 % of all undergraduate students at ITB are fully funded by the government including their daily expenditures. Full tuition fee is only paid by approximately 47.8 % of the students. A tuition waiver scheme is available upon request and the amount depends on the parents' economic status. The amount of waiver ranges from 20 to 80 % of the total fee. In addition, several grants for students with financial difficulties are available, such as from the government, industries, foundation, alumni association and ITB parents' association.

During the discussion with the peers, students point out that students in need of financial support usually receive a scholarship from ITB and are offered a room in dormitory. However, most students live either at their parents' house or in a student hostel. Some senior students work as laboratory assistants to earn some money for financing their studies.

The academic year at ITB starts in August and ends in June. Each academic year consists of two semesters, which run for 16 weeks each. Two out of the 16 weeks are examination periods. A short summer semester is offered with a maximum workload of 10 credits. The summer semester is designed to assist students to repeat failed classes or to make up for missing credits in order to be able to complete the programme within the allowed period of time.

After graduation, graduates of the pharmacy programmes are eligible for the pharmacist professional degree programme (1-year programme) to obtain an apothecary (pharmacist) license.

In contrast to most other Indonesian universities, community service is not a compulsory course for undergraduate students at ITB. However, all students can enrol in a course called “Social Community Service Course”, which is an elective and offered by the Faculty of Arts and Design. Although community service is not mandatory, most of the undergraduates at ITB are involved in social activities and choose community service as an additional course.

The regular classes of both pharmacy degree programmes are conducted in Indonesian since it is aimed for Indonesian students. Since 2006, the international class, which is conducted in English, has been offered for foreign students or Indonesian students who wish to attend the courses in English. In 2019, there were 17 undergraduate students in the English classes at the School of Pharmacy. This number has slowly increased, for example in 2015, there were only four students in the international classes of UPCCP and UPPST. This is a good sign and shows that the internationalisation of the pharmacy programmes is increasing.

Since ITB has the goal to become internationally more visible and wants to further internationalise its degree programmes, the peers discuss with the programme coordinators and students if any classes in UPB and UPMB are taught in English. The programme coordinators explain that usually all courses are delivered in Bahasa Indonesia (Indonesian language) but most of the teaching materials (teaching slides) are provided in English. Sometimes parts of a lecture are held in English, for example if there is an international guest lecturer. Sometimes, even the whole course is offered in English in order for international student to attend the classes. Information about the curriculum is available for students in the digital academic information system and on the programme’s homepage. Furthermore, students are encouraged to attend summer courses that are held in English with international students and guest lecturers. The students confirm that some presentations are done in English, and English textbooks are used but the peers are convinced that more active English speaking would be useful.

The peers see that most members of the teaching staff in the School of Life Sciences and Technology as well as in the School of Pharmacy have international experience (e.g. have graduated from an international university) and, therefore, have a very good English proficiency.

Moreover, the English proficiency of the students that take part at the discussion with the peers is very good. However, the participating students were also selected for their English speaking abilities. In general, the peers gain the impression that especially in UPB and

UPMB there could be more English elements in the courses. Students should be encouraged to actively speaking English. This could be achieved e.g. by discussing international papers or giving oral presentations in English.

The members of the teaching staff explain on demand of the peers that they offer possible topics for the final projects according to their own research projects. All members of the teaching staff supervise theses. Students have to design a research proposal with a time schedule for the project, which is discussed with the academic advisor. If they agree, the students apply formally for being allowed to work on the suggested topic.

The peers gain the impression that the graduates of the all degree programme under review are well prepared for entering the labour market and can find adequate jobs in Indonesia.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Reports
- ITB Regulation for Academic and Student Affairs
- Decree of Minister of Research, Technology and Higher Education No. 2, 2015
- ITB webpage: <https://www.itb.ac.id/admission>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Reports, admission procedures and policies for new students follow the National Regulation No.2, 2015. The requirements, schedule, registration venue, and selection test are announced on ITB's webpage and thus accessible for all stakeholders.

There are three different ways by which students can be admitted to a Bachelor's programme at ITB:

1. National Entrance Selection of State Universities (Seleksi Nasional Masuk Perguruan Tinggi Negeri, SNMPTN), a national admission system, which is based on the academic performance during the high school (40 % of the students at ITB are admitted through this selection system).
2. Joint Entrance Selection of State Universities (Seleksi Bersama Masuk Perguruan Tinggi Negeri, SBMPTN). This national selection test is held every year for university candidates. It is a nationwide written test (subjects: mathematics, Bahasa Indonesia, English, physics,

chemistry, biology, economics, history, sociology, and geography). It accounts for 40 % of the admitted students at ITB.

3. Independent Selection (Seleksi Mandiri) students are selected based on a written test (similar to SBMPTN) specifically held by ITB for prospective students that haven't been accepted through SNMPTN or SBMPTN (20 % of the students at ITB are admitted through this test).

The senate of SP as well as the senate of SLST decides the number of intakes, which is subsequently proposed to the university. In recent years, intake numbers for SP have been constant at around 110 students (UPPST) and 52 students (UPCCP). Students are placed in either UPPST or UPCCP after completing the Common First Year. The placement is based on students' preferences, GPA and class capacity.

Equally, the senate of SLST proposes the yearly intake for the biology and microbiology undergraduate programmes. Entrance into SLST is quite competitive with a very high ratio of applicants to actual accepted students. Every year, approximately 1.100 students apply for entrance to the Biology and Microbiology undergraduate programmes. Of these applicants, only around 100 are accepted into UPB and around 40 into UPMb. This reflects the high interest of prospective students in life sciences and the high reputation of studying at ITB.

The number of applicants exceeds by far the number of available places. For example, in 2019, there were 2.558 students applying for admission to the School of Pharmacy and only 200 new students were accepted, of whom 180 enrolled as students. This is equivalent to an admission rate of only 7.8 %. The numbers in former years are similar. Furthermore, at the School of Life Sciences and Technology, significantly more students apply for a place than can be accepted. In 2019, 1.107 students applied for an undergraduate programme at SLST, of whom 141 were admitted. This is equivalent to an admission rate of 12.7 %. The numbers in former years are similar.

The details of the application process at ITB and further information on admissions criteria and deadlines can be found in the National Regulation No. 2, 2015 and the ITB Regulation for Academic and Student Affairs, which is also published on the university's webpage.

The peers inquire of the programme coordinators why there are so many students applying for studying at ITB. They learn that biology, microbiology, and especially pharmacy are popular subjects because the job perspectives are very good. In addition, there are many high school graduates in Indonesia and ITB is one of the most prestigious universities in the country. Consequently, ITB only accepts the very best candidates. From their discussion with the students, the peers gain the impression that the admission system is very effective

and only very motivated and high-performing candidates are admitted. The peers consider the highly selected and motivated students to be one of the strong points of the four undergraduate programmes under review.

In summary, the auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:

The auditors understand that the degree programmes are delivered in Bahasa Indonesia. It is recommendable that in some courses students are encouraged to actively speak English e.g. by giving presentations. These efforts could be increased.

The auditors consider criterion 1 to be fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Webpage Ba Biology: <https://biologis1.sith.itb.ac.id/en/>
- Webpage Ba Microbiology: <https://mikro.sith.itb.ac.id/en/?lang=en>
- Webpage Ba Pharmaceutical Sciences and Technology: <https://english.fa.itb.ac.id/uppst/>
- Webpage Ba Clinical and Community Pharmacy: <https://english.fa.itb.ac.id/upccp/>
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The curriculum of all four Bachelor's degree programmes under review are designed for eight semesters. Nevertheless, it is also possible for excellent students to complete the degree in only seven semesters. Students cannot cover more than 24 CSU per semester. The students' individual study plans are different from each other, but have to be approved by their academic advisors and the Vice Dean of Academic and Student Affairs.

The undergraduate curriculum is structured into two general phases, namely the Common First Year (Tahap Persiapan Bersama, TPB) and the Bachelor phase (Sarjana). The former is delivered in two semesters while the latter encompasses six semesters, consisting of compulsory and elective courses. The Common First Year contains compulsory courses of ITB, aimed to ensure that students have adequate proficiency in basic science and languages. The normal duration of this stage is two semesters, consists of 36 CSU (50 ECTS). However, students can complete this stage within two years. To complete the Common First Year stage, students are required to have a minimum GPA of 2.0 out of 4.0 and all courses need to have minimum grade of D.

Several compulsory courses in the Bachelor phase, namely "Pancasila and Civic Education", as well as "Religion and Ethics", are managed at the university level and mandatory subjects for all Bachelor's students in Indonesia. They are aimed at developing social skills, and character building. The Bachelor (Sarjana) stage is managed by each school. The aim of this stage is to develop the knowledge and skill of chosen discipline. Normal duration of this stage is 6 semesters with minimum of 108 CSU (150 ECTS). To complete the Bachelor stage, students are required to have minimum GPA of 2.0 out of 4.0 and all courses need to have minimum grade of C. All students have to complete the undergraduate programme (Common First Year and Bachelor stage) within six years.

For the elective subjects, the class size depends on the number of the attending students. The elective subjects are designed not only to give additional knowledge complementing the compulsory course, but also to help students deciding on a final project and personal scientific interest.

A systematic university-wide review of the curriculum is conducted every five years but minor changes may be implemented every year after endorsement by the school's senate.

As described in the Self-Assessment Report, the curriculum of UPPST and UPPCP differ by 63 % in order to ensure that both programmes are different and focus on their specific objectives. Compulsory courses in one programme may be offered as elective courses in the other undergraduate programmes.

Since the first accreditation of the pharmacy programmes several changes in the curriculum have been implemented. The changes reflect the need for graduates to meet the Indonesian Pharmacists Competency Standard (Standar Kompetensi Apoteker Indonesia, SKAI). For this reason, a new course titled “Communication, Drug Information, and Education” was introduced in the UPPST. UPCCP now includes a new course “IV admixture” to improve students’ basic competence on drug compounding. Furthermore, practical work for “Basic of Pharmaceutical Dosage Form Technology” was introduced to UPCCP to meet the required basic skill in SKAI regarding formulation and production of pharmaceutical preparation and “Introduction to Pharmacy Profession” (internship), which used to be an elective, is now compulsory for both undergraduate programmes. This was changed as a response to a suggestion from various stakeholders, including ASIIN and Pharmacy Board Malaysia (LSM), to provide students with more exposure to the real work world.

The Bachelor’s degree programme Biology includes compulsory courses – 123 CSU (170.8 ECTS) and elective courses – 21 CSU (29.2 ECTS). Elective courses can be taken from the third year of study. Students can choose to register in elective courses from UPB or other study programmes. Students usually choose elective courses that relate to their final research project and/or their individual interests.

The following changes in the curriculum have been implemented in UPB since the first accreditation:

- The course “Plant Structure and Development” was shifted from the 4th semester to the 3rd semester and vice versa “Biosystematics” was moved from the 3rd semester to the 4th semester. This was necessary because some content from “Plant Structure and Development” is needed for “Biosystematics”.
- A similar change concerns the course “Microbiology”, which was transferred from the 6th to the 5th semester in exchange with “Project in Cell and Molecular Biology”. Some knowledge needed for “Project in Cell and Molecular Biology” is taught in “Microbiology” and other courses in the 5th semester.
- “Synthetic Biology” was moved from the 6th semester to the 7th semester (4th year) due to its degree of complexity.
- “Introduction to Bioinformatics for Biologist” was added as a new course in the 6th semester. As a compensation, credits for “Behavioural Biology” in the same semester were reduced from 4 to 3 CSU and the scope of the elective courses was reduced.

The Bachelor’s degree programme Microbiology requires students to complete 128 CSU of compulsory courses and a minimum of 16 CSU of elective courses. Electives can be chosen from UPMb or from other study programs (minimum of 3 CSU). The Bachelor’s stage of UPMb includes 31 compulsory modules and 6 electives.

The peers point out that they need additional information about the changes implemented in UPMB since the first accreditation in 2015. Therefore, they ask ITB to submit this information together with its statement.

After analysing the module descriptions and the study plans the peers confirm that all degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. All practical lab work and internships are well integrated into the curriculum and the supervision by the School of Life Sciences and Technology and the School of Pharmacy guarantees for their respective quality in terms of relevance, content, and structure.

The peers point out that it is crucial to keep track of the new developments in the areas of biology, microbiology, and pharmacy. In these fields, new techniques and technologies are introduced permanently and the content of the degree programmes needs to be adjusted accordingly to accommodate these developments and innovations.

In summary, the peers gain the impression that the choice of modules and the structure of the curriculum ensures that the intended learning outcomes of the respective degree programme can be achieved.

International Mobility

ITB provides opportunities for students to conduct internships and exchange programmes abroad. A list of available exchange and internship programmes that students can participate in is available at ITB's International Relation Office. For example, students have been in Thailand, India, and Singapore for their internship and student exchanges have taken place with universities in Japan, Belgium, and Korea.

In addition, ITB has a budget for international activities (around €600.00 per year) for inviting guest lecturers, conducting summer schools, and organizing student and teacher exchange programmes. ITB co-operates with renowned universities in the South East Asia e.g. with the National University of Singapore. Moreover, ITB has established a task force for further developing the internationalization of ITB.

The credits acquired abroad are transferable to ITB, although this transfer of credits is only possible if an agreement exists between ITB and the involved international university. This agreement regulates the details of the transfer, such as the list of courses that can be transferred, the minimum grade, equivalency of curriculum between universities, etc.

The School of Life Sciences and Technology regularly offers a summer school programme, which is funded by the World Class University (WCU) programme of ITB. In addition, a memorandum of understanding was signed with Hiroshima University in 2018 and undergraduate students now can take part at an exchange programme with Hiroshima University. Most

of the incoming students originate from Asian countries such as Korea, Japan, and Malaysia. Since 2016, only 21 undergraduate students from the School of Life Sciences and Technology have spent some time abroad. Most of these stays were short time visits, e.g. for attending symposiums or conferences. The peers see that some international co-operations exist, but especially the number of Indonesian Bachelor's students spending some time abroad is rather low.

According to the opinion of the peer group, a problematic of the Biology and Microbiology undergraduate programmes is the limited academic mobility of the students. The programme coordinators admit that the number of Bachelor's students who participate in international exchange programmes is still low despite students' high interest. However, some international students join SLST by attending various summer school programmes. For example, there were summer school programmes in Immunology and Microbial Pathogens (2017), in Sustainable Forestry for Natural Product Development (2018), and in Tropical Plants as Medicinal Herbs and Cosmetics Ingredients (2019). Most of the incoming students come from Asian countries such as Korea, Japan, and Malaysia; a few are from the USA and Mexico. Some UPMb students participated in short exchange programmes or research projects, e.g. in Thailand, Japan, and Korea.

On the other hand, the students' academic mobility in the pharmacy programmes is significantly higher. According to the Self-Assessment Report, the School of Pharmacy has several agreements with international universities in Singapore, Germany, Taiwan, Malaysia, Romania, Thailand, Egypt, Japan, Malaysia, Hungary, Turkey and South Korea. Several programmes are offered to support students' mobility, such as the summer school programme, which has been established in 2017. The summer school programme is very attractive but only allows the participation of a limited numbers of students. Thus, the selection process for the summer school participation is highly competitive, especially since interested students are usually not only from the School of Pharmacy but also from various universities abroad. The numbers of students who joined the student exchange programme has increased in the last five years. For example, in 2015, 22 undergraduate students from the School of Pharmacy spent some time abroad. In 2019, there were already 35. Moreover, there are also several incoming international students (e.g. 54 in 2018 and 44 in 2019). Although most of the incoming students only spent a couple of weeks at ITB, the higher number shows that the internationalisation of the School of Pharmacy is developing well.

The students confirm during the discussion with the peers that some opportunities for international academic mobility exist. However, they also point out that they wish for more places and better endowed scholarships for long and short-term stays abroad. One pharmacy student from the international class adds that there is an obligatory student exchange course for international students of the School of Pharmacy in their third year. In

addition, the alumni emphasise that students should be better informed about the already existing programmes and opportunities for students' exchange. For example, ITB could organise an "International Day" and ask guest lecturers and international students to give presentations and offer insights from their stay abroad. As students add during the audit, more financial funds are available for pharmacy students because International Pharmaceutical Students' Federation provides scholarships for stays abroad.

The number of available places in the exchange programmes is still limited and there are restrictions due to a lack of sufficient financial support. ITB can only provide limited travel grants, while the demand from students is rising. The lack of financial support hinders students from joining the outgoing programmes. This situation is worsened by the weakness of the Indonesian currency, which forces students to spend quite a considerable amount of money in order to join an outgoing programme.

The peers understand these problems; however, they recommend increasing the effort to further internationalising ITB by establishing more international co-operations and exchange programmes and by offering more and better-endowed scholarships. In addition, the peers see that most of the faculty members have international contacts, which can be used for establishing more international co-operations. It is also possible for students and teachers to apply to international organisations like ERASMUS or the German Academic Exchange Council (DAAD) for receiving funds for stays abroad.

Rules for recognising achievements and competences acquired outside ITB exist but only very few students attend classes at international universities.

In summary, the peers appreciate the effort to foster international mobility and support both the School of Pharmacy and the School of Life Sciences and Technology to further pursuing this path.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- ITB Regulation for Academic and Student Affairs
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Based on the National Standards for Higher Education of Indonesia (SNPT), all four undergraduate programmes under review use a credit point system called CSU. The minimum workload of an undergraduate programme in ITB is 144 CSU, which corresponds to 5.760 academic hours or 200 ECTS (1 ECTS is equivalent to 28.8 hours of students' workload). One academic hour is 50 minutes. The normal workload of each regular semester is 720 academic hours, which corresponds to 18 CSU (25.2 ECTS). The maximum workload of the summer semester is 400 academic hours or 10 CSU (13.9 ECTS).

To complete the degree programme in time, Bachelor students need to take on average of 18 CSU per semester excluding co-curricular contents. However, the regular schedule usually covers 20-21 CSU per semester to give more space in the last semesters for resits, or more electives. If a student is not satisfied with his/her GPA, she or he can repeat the classes, but this will lead to a prolongation of the study time.

For regular classes, 1 CSU of academic load for the undergraduate programme is equivalent to 3 academic hours, which equals 150 minutes. This includes:

- one academic hour of scheduled contact with the teaching staff in learning activities,
- one academic hour of structured activities related to lectures, such as doing the assignments, writing papers, or literature study,
- at least one academic hour of independent activity to obtain a better understanding of the subject matters and to prepare academic assignments such as reading references.

For lab work, final project, fieldwork, and other similar activities, 1 CSU is equivalent to 3 to 5 hours a week of student's activities. The details and the students' total workload are described in the respective module description.

In addition, based on the newest national regulation (Permendikbud No. 3/2020), an Indonesian credit unit is defined as activity hour, which is not only limited to attending regular teaching class. The activity may also include internships, student exchange programmes, community service, research, independent study, and teaching. Such activities can be conducted up to two semesters (equivalent to 40 CSU) and must be supervised by an academic advisor.

The peers point out that there can be no fixed conversion rate between CSU and ECTS point, but the ECTS points need to be calculated separately for each course. This can be easily done by dividing the students' total workload, which is described in detail in the respective module description, through 28.8.

According to the Self-Assessment Report, most of the undergraduate students at the School of Pharmacy can complete their degree without exceeding the expected period. For example in UPPST and in UPCCP, between 95 and 80 % of the students (years 2010/2011 to 2015/16) have graduated within four years.

At the School of Life Sciences and Technology, the on-schedule graduation rate has consistently increased each year from 56 % in 2016 to 67 % in 2019 for UPB. The percentage of students that graduate in time is significantly higher in UPMB. In this programme, an average of 84.1 % have graduated in time (admission years 2009 to 2015).

The programme coordinators of UPB explain that there are two main reasons why the average study length is more than four years: First, the final projects of biology students are full-cycle research projects, which use and depend on living organisms that are often difficult to handle and thus may prolong the time required for the final project. Secondly, sometimes there are some technical difficulties in the field or in the lab. Therefore, students sometimes have to repeat the experiments, which results in a longer study period. To overcome these difficulties, UPB has implemented the final project control sheet, which is used to monitor the student's final project progress. Another improvement is that the final project supervisor(s) are now appointed earlier in order to allow students to start their projects as soon as possible. The peers support these measures and encourage UPB to pay close attention to the average length of studies and the time students spent on their final project.

Finally, students point out that their workload is very high, especially during the time when the curricula of the pharmacy and the biology programmes were changed. The peers support this assessment and point out that the programme coordinators should pay close attention to the students' workload and try to better balance it out over the different semesters.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Reports
- Study plans of the degree programmes
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, seminars and projects, etc.) have been implemented. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations.

ITB has the goal to support the transition from a teacher-centred to a student-oriented teaching method in order to involve all students in the learning process and to develop their thinking and analytical skills.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. ITB wants to encourage the students to gain knowledge from different scientific areas and wants to introduce them to research activities. This should ultimately contribute to the transition from a teacher-centred to a student-centred learning approach.

The most common method of learning is class session, with several courses having integrated laboratory practices. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic as well as their soft skills. Laboratory work covers laboratory preparation, pre or post-tests, laboratory exercises, reports, discussions, and presentations. In addition, practical activities should enable students to be acquainted with academic research methods.

In some pharmacy courses, (e.g. Basic Pharmacotherapy, Pharmacotherapy, and Basic Clinical Pharmacy) some problem-based learning methods are applied, in which students will discuss pre-assigned topics. In addition, students are requested to analyse the assigned cases and formulate appropriate solutions and to provide drug counselling to patients. In the latter, counselling practice in the form of role-playing is conducted.

To help students achieving the intended learning outcomes and to facilitate adequate learning and teaching methods, ITB has developed an e-learning platform, where students and teachers can interact.

In summary, the peer group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concept of all four undergraduate programmes comprises a variety of

teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format. It actively involves students in the design of teaching and learning processes (student-centred teaching and learning).

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Reports
- ITB Regulation for Academic and Student Affairs
- Discussions during the audit

Preliminary assessment and analysis of the peers:

ITB offers a comprehensive advisory system for all undergraduate students. At the start of the first semester, every student is assigned to an academic advisor. Each academic advisor is a member of the academic staff and is responsible for approximately 20 students from his classes. He/she is a student's first port of call for advice or support on academic or personal matters.

The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers. The students confirm during the discussion with the peers that they all have an academic advisor.

In general, students stress that the teachers are open minded, communicate well with them, take their opinions and suggestions into account, and changes are implemented if necessary.

The fourth-year students who prepare their final project have one or more supervisors, who are selected based on the topic of the final project. One supervisor could be an external supervisor, if the student performs the research outside ITB (e.g. hospital, pharmacy, public health centre, etc.). The role of the final project supervisor is to guide students in accomplishing their final project, e.g. to finish their research and complete the final project report.

All students at ITB have access to the digital academic information system (SI-X). The students' profiles (student history, study plan, academic transcript and grade point average/GPA, lecturer evaluation, course list) are available via SI-X.

Finally, there are several student organizations at ITB; they include student's activity clubs, which are divided into arts, sports, religious and other non-curricular activities.

The peers notice the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay. The students are well informed about the services available to them.

The only weak point the peers notice in an otherwise very comprehensive advisory system is the lack of institutionalised psychological support for students. As the stress for the students during their university education is rather high, there is always the danger of a psychological breakdown or burnout. The students confirm during the discussion with the peers that these problems exist and that they can receive help if they specifically ask for it. However, students have to make the first step and need to seek actively for psychological support. For this reason, the peers are convinced that it would be useful to establish a point of contact for helping students with psychological problems. The respective contact should be made known to all students.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

The auditors thank ITB for providing additional information about the changes implemented in UPMb since the first accreditation. The details are described in section E of this report.

The auditors observe that the School of Life Sciences and Technology is committed to provide sufficient funding for students' academic mobility. However, they are convinced that students' academic mobility should be better promoted by increasing the number of available places and scholarships and by actively informing students about the existing programmes and opportunities.

With respect to the students' workload, the auditors confirm that the School of Pharmacy now correctly converts the number of hours students spend on the course into ECTS credits. However, in the provided overviews for UPB and UPMB the students' total workload in hours per semester still does not fit with the awarded ECTS credits. The conversion needs to be done course by course and the total hours per semester then divided by 28.8. The auditors expect the School of Life Sciences and Technology to make sure that the awarded ECTS points comply with the students' total workload.

The auditors thank ITB for explaining that there is a programme for supporting students with psychological problems. Several offers are made for students in this programme and

each study programme has an appointed counsellor. In addition, ITB co-operates with Melinda Hospital in Bandung in treating students with serious psychological problems. The auditors point out that they have the impression that not all students are well informed about these offers and that the respective counsellor should be made better known to all students.

The consider criterion 2 to be mostly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Reports
- Module descriptions
- ITB Regulation for Academic and Student Affairs
- ITB Academic Calendar

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Reports, the students' academic performance is evaluated based on their attendance and participation in class, their laboratory works and reports, assignments, homework, presentations, mid-term exam, and the final exam at the end of each semester. The form and length of each exam is mentioned in the module descriptions that are available to the students via ITB's homepage and the digital platform SI-X.

The most common type of evaluation used are written examinations; however, quizzes, laboratory work, assignments (small projects, reports, etc.), presentations, seminars, and discussions may contribute to the final grade. Written examinations, either closed-book or open-book, typically include short answers, essays, problem-solving or case-based questions, and calculation problems. Some lecturers also give multiple choice or true-false questions in examinations or quizzes. The grade from laboratory work usually consists of laboratory skills, discussions, reports, and oral exams. Students are informed about mid-term and final exams via the Academic Calendar. The final grade is the result of the different activities in the course (e.g. laboratory work, mid-term exam, the final exam, quizzes or other given assignments).

Students must write a report about their internship, which will be evaluated by the responsible teacher at ITB using an internship rubric. Students are also obliged to present the results of their internship and share their experiences.

If a student fails, she or he usually has to repeat the entire module in the following year; it is usually not possible to retake just parts of the course or to just retake the final exam. Although, lecturers need to arrange examinations for students who have not taken the examinations due to valid reasons. Some courses allow students, whose grades are still below the passing level, to improve their grades through repeating an exam. The course's final grades are: A (score 4.0, excellent), AB (3.5, good to excellent), B (3.0, good), BC (2.5, fair to good), C (2.0, fair), D (1.0, insufficient), E (0.0, failed), or T (incomplete). The further details are described in the ITB Regulation for Academic and Student Affairs.

The peers discuss with the students how many and what kind of exams they have to take each semester. They learn that for each course there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or oral tests. The final grade is the sum of the sub-exams. The students appreciate that there are several short exams instead of one big exam and confirm that they are well informed about the examination schedule, the examination form, and the rules for grading.

Every student in the four undergraduate programmes under review is required to do a final project (Bachelor's thesis). This project is conducted independently under the guidance of one or more supervisors and usually consists of literature study, practical research, and data analysis. Both the student and his /her supervisors might decide the topic and content of the project. In many cases, the lecturers offer particular topics connected to their research. The final project is divided into 2 semesters, namely Final Project 1 and Final Project 2. Students can enrol in the Final Project 1 when they have completed 139 ECTS and passed the courses that they have taken in the second year. The Final Project 1 must be completed prior to starting the Final Project 2. Hence, Final Project 1 and 2 cannot be taken in the same semester. The Final Project 1 consists of literature studies about the possible research project and the preparation of a research plan to be carried out in the Final Project 2. The report about the final project is then presented in front of a group of examiners in seminar format. The examiners consist of the respective supervisors and at least two other lecturers from the faculty (or assigned institutions). It is also possible to conduct an external final project e.g. in co-operation with a company. In this case, one co-supervisor comes from the respective company. The peers point out that delays in conducting the final projects could be reduced, if it was possible to start with Final Project 2 even before Final Project 1 is formally finished.

Moreover, a comprehensive oral examination (final defence) is compulsory for all students for the completion of their undergraduate programme at ITB. For admission to the final oral examination, students must have passed all modules of their study programme.

The peers also inspect a sample of examination papers and final theses and are overall satisfied with the general quality of the samples.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

ITB does not comment on this criterion in its statement.

The auditors consider criterion 3 to be fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Reports
- Staff Handbook
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:

At ITB, the staff members have different academic positions. There are professors, associate professors, assistant professors and instructors. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, a full professor needs to hold a PhD degree. In addition, the responsibilities and tasks of a staff member with respect to teaching, research, and supervision depend on the academic position.

According to the Self-Assessment Report, the teaching staff at the School of Pharmacy consists of 66 full-time teachers (16 professors, 13 associate professors, 11 assistant professors, and 26 instructors). The faculty at the School of Life Sciences and Technology encompasses 108 full time teachers (8 professors, 31 associate professors, 36 assistant professors, and 26 instructors). In 2019, the student – teacher ratio at the School of Pharmacy was 13.5

to 1. Student-staff ratio in UPB was 12.2 to 1 and in 6.4 to 1 in UPMb in the same year. This ratio has been fairly constant within the last few years. Most of the faculty members at the School of Pharmacy (65 %) as well as at the School of Life Sciences and Technology hold a PhD from either a reputable Indonesian or international university.

All fulltime members of the teaching staff are obliged to be involved in (1) teaching/advising, (2) research, and (3) community service. However, the workload can be distributed differently between the three areas from teacher to teacher.

In addition, SLST and SP recruit temporary (contract based) academic assistants which hold at least a Bachelor's degree to support research and academic activities. Finally, there are non-academic staff members consisting of librarians, technicians, and administrative staff. SLST currently employs 51 non-academic staff members and 14 academic assistants. SP employs seven academic assistants who hold a Master's degree and 25 laboratories technicians to support the laboratory exercises. In addition, 35 administrative staff work at SP.

The peers discuss with ITB's management how new staff members are recruited. They learn that every year the faculties and departments announce their vacancies to ITB's management, which subsequently announces the vacancies on ITB's webpage. Since ITB is semi-autonomous, they can decide themselves what staff members to hire. One way to recruit new teachers is to send promising Master's students from ITB abroad to complete their PhD and then to hire them as teachers when they are finished. ITB also hires graduates from other universities. Vacancies are announced nationally, so ITB gets applications from other universities but approximately between 80 and 90 % of the faculty are ITB graduates. During the audit, members of the teaching staff emphasise that the selection process for new teachers is now more open than in the past. Therefore, now more young teachers that have not graduated from ITB are hired.

In summary, the peers confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes.

The auditors are impressed by the excellent and open-minded atmosphere among the students and the staff members. This atmosphere of understanding and support is one of the strong points of the degree programmes.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Reports

- Staff handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:

ITB encourages training of its academic and technical staff for improving the didactic abilities and teaching methods. As described in the Self-Assessment Reports, faculty members and non-academic staff regularly participate in training or workshops organised by the People and Organisation Development (Pengembangan Manusia dan Organisasi, PMO) division of ITB. This division offers in-house training related to human resources development, management and organisation. It also offers tailor-made training for special cases. The subjects of training for non-academic staff include emotional intelligence, computer literacy, English, administration, procurement, management, photography, etc.

Several programmes are offered to the faculty members in order to refine and develop their competencies (e.g. Applied Approach programme, Recharge programme from the Ministry of Education's Directorate General of Higher Education). The Applied Approach programme is designed particularly for junior faculty members to introduce various teaching methods, as well as syllabus and course content development. All teachers at ITB are obligated to attend the lecturer certification programme held by the Directorate General of Higher Education (Direktorat Jenderal Pendidikan Tinggi, DIKTI). An official teaching certificate is issued after the faculty member has completed the certification process. Only certified staff members are allowed to give lectures.

In addition, faculty members can further develop their competencies through several activities such as post-doctoral programmes, training, workshops, joint research, etc. Moreover, they are encouraged to present their research papers in national and international conferences, and to collaborate with colleagues from international universities.

The peers discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme at ITB, their opportunities to further improve their didactic abilities and to spend some time abroad to attend conferences, workshops or seminars; even a sabbatical leave is possible.

In summary, the auditors confirm that ITB offers sufficient support mechanisms and opportunities for members of the teaching staff who wish for further developing their professional and teaching skills.

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Reports
- Video of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Basic funding of the undergraduate programmes and the facilities is provided by ITB, the Faculty of Pharmacy, and the Faculty of Life Sciences and Engineering. Additional funds for research activities can be provided by ITB or the Indonesian government (Bantuan Pendaan Perguruan Tinggi Nasional, BPPTN), but the teachers have to apply for them. In addition, there are several co-operations with industrial partners.

ITB distributes the budget among the 12 different schools and faculties according to the size of the student body (all undergraduate programmes have the same tuition fee). Nevertheless, some study programmes (e.g. Pharmacy) need more funds than other programmes because of the necessary instruments and technical equipment. This is also taken into account by ITB's management when the yearly budget is allocated.

The provided budget allows the departments to conduct the study programmes as well as some specific activities, including student exchange programmes, student financial assistance for research, and participation in international conferences. However, the budget is limited but has increased in recent years. For example, in UPB funding from industrial partners has doubled since 2017.

The programme coordinators of the pharmacy programmes emphasise that from their point of view, both undergraduate programmes received sufficient funding for teaching and learning activities. Hence, UPPST and UPCCP do not face any financial shortages. Of course, there is limited funding to modernize or add laboratory equipment. However, in the last five years, ITB has provided additional funds for renewing and adding laboratory equipment. Furthermore, the School of Pharmacy has received support from private companies to modernize laboratory equipment. The teachers confirm that there are sufficient resources for adequately teaching the classes. The only problem are financial restrictions with respect to the research activities. However, the situation has improved in recent years and ITB as well as the Indonesian government are now providing more funds. Consequently, it is getting better; for example, each research group now has its own budget, but it still could be further improved. The peers emphasise that there should be enough funds for students to carry out their final projects and the involved research activities. Some alumni complain that they had to contribute to financing their final project because their research group did not have enough financial resources.

Before the audit, the peer group receives videos showing the teaching and research laboratories in the School of Pharmacy and the School of Life Sciences and Technology. They notice that there are no bottlenecks due to missing equipment or a lacking infrastructure. The technical equipment for teaching the students on a Bachelor's level as well as more sophisticated instruments for conducting research activities are available. This positive impression is confirmed by the students during the discussion with the peers. They are satisfied with the available equipment and the technical infrastructure. They only criticise that the space in the laboratories is quite limited and that there should be more working places. In addition, students regularly have to take turns in operating some instruments because they are not available in sufficient numbers. The peers learn during the audit that students can use and operate the instruments in the laboratories by themselves after being trained and instructed by either senior students or lab technicians.

In addition, the programme coordinators of all four undergraduate programmes under review point out that there are enough funds for running the degree programmes adequately. They only wish for more financial support for additional activities like attending international workshops and conferences, student exchange programmes, and inviting international guest lecturers.

The peers gain the impression that all necessary safety equipment (e.g. showers, eye washers, first aid kit, fire extinguishers, emergency contacts etc.) are available in the laboratories. In addition, students are introduced to the safety regulations and procedures in all practical courses at the beginning of every semester.

During the audit, the peers learn that at ITB there is the "Centre for Advanced Sciences" which was established in 2015 as a national centre of excellence. It is funded by the Indonesian government and focuses on research in the areas nanoscience and nanotechnology. It is dedicated for post-graduate students and researchers.

The students also express their satisfaction with the library and the available literature there. However, they criticise that the access to electronic books and journals as well as to scientific databases is limited. The peers support this point of view and, therefore, recommend improving the online access to scientific databases and electronic literature.

In summary, the peer group judges the available funds, the technical equipment, and the infrastructure (laboratories, library, seminar rooms etc.) to comply – besides the mentioned small restrictions- with the requirements for adequately sustaining the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

ITB does not directly comment on this criterion in its statement.

The auditors consider criterion 4 to be mostly fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Self-Assessment Reports
- Module descriptions
- Webpage Ba Biology: <https://biologis1.sith.itb.ac.id/en/>
- Webpage Ba Microbiology: <https://mikro.sith.itb.ac.id/en/?lang=en>
- Webpage Ba Pharmaceutical Sciences and Technology: <https://english.fa.itb.ac.id/uppst/>
- Webpage Ba Clinical and Community Pharmacy: <https://english.fa.itb.ac.id/upccp/>

Preliminary assessment and analysis of the peers:

The students, as all other stakeholders, have access to the module descriptions via ITB's homepage. The more detailed syllabus is handed out to the students by the lecturers at the beginning of the semester. It includes a practical guideline and detailed description of the practical parts of each course.

After studying the module descriptions, the peers confirm that they include all necessary information about the persons responsible for each module, the teaching methods and work load, the awarded credit points, the intended learning outcomes, the content, the applicability, the admission and examination requirements, and the forms of assessment and details explaining how the final grade is calculated.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Reports
- Sample Diploma for each degree programme
- Sample Diploma Supplement for each degree programme

Preliminary assessment and analysis of the peers:

The peers confirm that the students of all four degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Diploma Supplement contains all necessary information about the degree programme including acquired soft skills and awards (extracurricular and co-curricular activities). The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, and cumulative GPA.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Reports
- All relevant regulations as published on the university's webpage

Preliminary assessment and analysis of the peers:

The auditors confirm that the rights and duties of both ITB and the students are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all relevant stakeholders. In addition, the students receive all relevant course material in the language of the degree programme at the beginning of each semester.

A disabled alumni of ITB, who was taking part at the discussion with the peers, was very grateful that he had the same opportunities as his non-disabled fellow students. He was neither excluded from laboratory work nor was discriminated and received all the support from the teachers that he needed.

The only deficit the peers notice is the lack of a specific regulation for disability compensation. Since such a regulation does not yet exist, the peers expect ITB to draft a regulation for disability compensation of handicapped students.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

The auditors appreciate that ITB has recognised the need for drafting a regulation for disability compensation. They expect that ITB will submit the new regulation in the further course of the accreditation procedure.

The auditors consider criterion 5 to be mostly fulfilled.

6. Quality management: quality assessment and development

Evidence:

- Self-Assessment Reports
- ITB Regulation for Academic and Student Affairs
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The auditors discuss the quality management system at ITB with the programme coordinators and the students. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal (IQA) and external quality assurance (EQA). IQA encompasses all activities focused on implementing measures for improving the teaching and learning quality at ITB. EQA focuses on both national and international accreditations. National accreditation is conducted by the National Accreditation Agency of Higher Education (NAAHE), under the Ministry of Education and Culture, Republic of Indonesia. National accreditation of the programme within the university is a legal obligation for every study programme. NAAHE assesses every study program in every Higher Education Institution in Indonesia. Although institutional accreditation is not obligatory, every university in Indonesia is recommended to do so. According to the latest evaluation of the institutional accreditation, ITB has been ranked as an excellent university (grade A, the highest rank of institutional accreditation). Both UPPST and UPCCP of the School of Pharmacy and UPB and UPMB of the School of Life Sciences and Technology have obtained the highest accreditation status (A) from NAAHE.

The internal quality assurance system at ITB is conducted by the Quality Assurance Unit (Satuan Penjaminan Mutu/SPM ITB) at university level. This unit determines the criteria, suitable measures, and its indicator as well as the quality assurance processes for all study programmes at ITB. In addition, the quality assurance processes at school/faculty level is organised by the Quality Control Units (Gugus Kendali Mutu, GKM). The GKM is working directly under the respective dean. Its role is to ensure the quality of educational processes and research activities in each study programme. The main role of GKM is to set up and verify academic standards and guidelines at faculty/school level, which are derived from those at university level. Internal evaluation of the quality of the degree programmes is mainly provided through student and alumni surveys. Students give their feedback on the courses through online questionnaires at the end of each semester. Students assess various aspects such as students' understanding, lecturer's responsiveness, course delivery, lecturer's proficiency, explanation of course objective, and references in each enrolled course.

Students' opinion are quantified by means of index 1 (unsatisfactory) to 4 (excellent). This method has been implemented since 2008, and it provides important input to assess the quality of the educational processes. Giving feedback on the classes is compulsory for the students; otherwise, they cannot access their account on the digital platform SI-X.

In addition, ITB regularly conducts an alumni study. By taking part at this survey, alumni can reflect on their educational experiences at ITB and their professional career. This tracer study is organised by ITB's alumni organization and the results are annually published

In addition, there is Career Development Centre (CDC) at ITB, which organizes a job fair every other year. This fair is open to the public and not limited to students from ITB. CDC also offers help to find suitable internships and courses to develop soft skills. Finally, each year there is an undergraduate exit survey. Students are asked to respond to several questions regarding their study experiences in ITB. The exit survey focuses on three main areas: quality of academic atmosphere, contribution of ITB education on learning and development on certain skills, and students' satisfaction with services and facilities.

Both, the School of Life Sciences and Technology and the School of Pharmacy, have established an advisory board in order to support academic accountability by providing guidance and feedback. The advisory board consists of a group of professionals and experts of the relevant fields, and stakeholders from within and outside the university.

The curriculum evaluations are held during the final exam week. A compilation of the students' feedback is sent to the respective lecturers. As the students point out during the discussion with the peers, there is also the possibility to give a direct and informal feedback to the teacher.

During the audit, the peers learn that if there is negative feedback, the Dean talks to the respective teacher, analyses the problem, and offers guidance. The auditors gain the impression that students' feedback is taken seriously by the faculties and changes are made if there is negative feedback. However, the peers notice that the results of the questionnaires are not discussed with the students directly. As students point out during the audit, they learn about changes in the degree programmes only from other students that attend the classes in following semesters. From the peers' point of view, it is necessary to close the feedback loops and to involve the students actively in the quality assurance processes. For this reason, the peers emphasise that students need to be informed about the results of the curriculum evaluations/questionnaires and possible improvements. In addition, they expect ITB to institutionalise students' participation, e.g. by having a student member in the Quality Assurance Units. Having a student member in ITB's board of trustees is a good first step. Nevertheless, it would also be necessary to involve students in quality assurance processes on faculty and programme level.

The peers see that there are regular meetings with partners from public institutions and private companies on faculty level where they discuss the needs and requirements of the employers and possible changes to the degree programmes. Besides this informal feedback, there is also an advisory board at SLST as well as one at SP. The peers confirm that due to the feedback from the external stakeholders, changes in the curriculum are implemented (e.g. introduction of a mandatory internship).

As the peers consider the input of the employers to be very important for the further improvement of the degree programmes, they appreciate the existing culture of quality assurance with the involvement of external stakeholders in the quality assurance process. Moreover, ITB and the School of Pharmacy as well as the School of Life Sciences and Technology stay in close contact with their alumni.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes. All stakeholders are involved in the process.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The auditors acknowledge that ITB will improve its internal quality assurance system by including students' feedback on the results of the satisfaction surveys. The auditors expect that ITB will verify that the feedback cycles are closed and that students are directly involved in the quality assurance processes.

The auditors consider criterion 6 to be mostly fulfilled.

D Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

- Information on changes implemented in UPMB since the first accreditation in 2015.

E Comment of the Higher Education Institution (29.10.2020)

ITB provides the following statement:

1. We appreciate the chance given and for trusting us to go through the accreditation process by means of online audit. The impressions that ASIIN and the peers wrote in this lengthy report give the ITB the recognition that those four programs have achieved the intended level of academic qualification and correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences (UPB and UPMb) and the SSC of the Technical Committee 09 – Chemistry (UPSST and UPCCP). For the undergraduate program to be internationally accredited from prestigious body such as ASIIN is one of the key performance indicators of ITB to meet high standard to ensure excellence in education and teaching.
2. We notice inquires for improvement in the following aspects in which the corresponding intervention is more on management side:
 - a. More financial sources for research
 - b. Mobility window for undergraduate students
 - c. Better information mode on students' scholarship
 - d. Students' feedback as part of loop of internal QA system
 - e. University guideline on disabilities
3. In response to the inquiries for improvement ITB management is planning to its internationalization and mobility mission by means of World Class University (WCU) program in the following aspects:
 - a. Provide more supporting activities (in particular financial incentive) on research (rather than branding-oriented mobility).
 - b. Provide more opportunities on students' mobility.
 - c. In case of scholarship, we would encourage improvement of scholarship program and advertisement through the ITB Directorate of Studentship.

Specific comments regarding Comments of ITB regarding the following Criterion:

Criterion 1.3 Curriculum.

The peers are convinced that more active English speaking would be useful.

Comments of ITB: According to the Indonesian regulation, the national education program should be conducted in Bahasa Indonesia. However, in some courses like in Communication skill course we can encourage student to talk more active in English, e.g. by giving student a presentation task which has to be presented in English.

Criterion 2.1 Structure and modules

The peers point out that they need additional information about the changes implemented in UPMB since the first accreditation in 2015. Therefore, they ask ITB to submit this information together with its statement.

Comments of ITB:

The document of curriculum implementation was provided in appendix I of UPMB: Curriculum Implementation of Microbiology.

The general change that has been implemented is the curriculum changes to meet the requirements needed for international accreditation by the ASIIN. Learning outcomes are formulated based on the KKNI (Indonesian National Qualification Framework), ITB Guidelines for curriculum 2019-2024, and the competencies required by Microbiology graduates. The specific learning outcomes of the study program can be grouped into four (4) categories, namely: (1) conceptual and comprehensive competence, (2) laboratory skills, (3) scientific thinking, and (4) social skills. Conceptual and comprehensive competencies along with laboratory skills are categorized as specialist competencies within the ASIIN Specific Criteria for Life Sciences. Meanwhile, scientific thinking and social skills are comparable to Social Competence in ASIIN criteria. These learning outcomes are in line with job market requirements and also refer to the International Microbiology Association (American Society for Microbiology - ASM).

The required credit for the Microbiology undergraduate program is 144 CU (200 ECTS), which is designed to be completed in 8 semesters. In the F, the students focus on strengthening basic scientific knowledge and building general abilities to support studies at a later stage. The students acquire mathematics, basic science, scientific and general skills required in minor and major courses.

The Common First Year Program for the Microbiology study program (similar to all faculties at ITB) consists of the following courses:

- Basic sciences which includes Mathematics, Physics and Chemistry,
- Introduction to engineering and design, consisting of Introduction to Information Technology and Introduction to Engineering and Design I and II,

- English, Indonesian (Scientific Writing) and Sports
- Introduction to Life Sciences and Technology, and
- Fundamental Biology.

After completing the Common First Year Program (TPB), the students enter the undergraduate stage consisting of 108 credits (150 ECTS), which focus on the basic knowledge and skills associated with the course of study.

Criterion 2.1 Mobility

According to the opinion of the peer group, a problematic of the Biology and Microbiology undergraduate programmes is the limited academic mobility of the students.

Comments by ITB: In order to increase student mobility in Biology and Microbiology undergraduate programmes, the School of Life Sciences and Technology has committed to provide sufficient funding for student exchanges, student international conferences and student international internships programmes.

Criterion 2.2 Workload and Credits

The peers point out that there can be no fixed conversion rate between CSU and ECTS point, but the ECTS points need to be calculated separately for each course. This can be easily done by dividing the students' total workload, which is described in detail in the respective module description, through 28.8.

Comments by ITB: ECTS has been re-calculated for each course. The revised document for each of four programs was provided in this report in Appendix: Programme Learning Outcomes and Curricula.

Response to ECTS Calculation School of Pharmacy

In Indonesia, the credit system (Sistem Kredit Semester, SKS) for an undergraduate program is made following the Regulation of Minister of Education and Culture Number 3 of 2020, previously the Regulation of Minister of Research, Technology, and Higher Education Number 44 of 2015. In this regulation, the minimum load of SKS for an undergraduate program is 144 SKS which is divided into four years of study (8 semesters). One semester of study usually consists of 14 weeks of lectures, excluding the mid-term and final-term exam.

The learning form is also regulated in the same regulation. For example, the learning form can be either one or a mix of various learning forms, such as lecture, practicum, tutorial, internship, exchange program, and seminar. Each learning form has a different workload in hours per SKS based on this regulation; hence the same number of SKS from different

courses may have different workloads. One SKS of lecture typically consists of 50 minutes face-to-face lecture with the lecturer, 60 minutes of structured assignment, and 60 minutes of independent study per week or 2380 minutes (~40 hours) per semester, while one SKS of practical works, fieldwork, and final project, and other similar activities is equivalent to 3-5 hours workload per weeks or 42-70 hours per semester.

The ECTS calculation in this response is approached in various ways. One SKS of a typical course consists of full lectures with 40 hours of workload per semester, so 1 SKS of a course consists of only lectures is equivalent to 1.39 ECTS (1 ECTS = 28.8 hours workload per semester). For a course with a mixed type of learning form, the practicum and tutorial workload is calculated per case in this response. After using both approaches, which depend on the course's learning forms, it has been calculated that the UPPST consists of 206.96 ECTS, while UPCCP consists of 204.4 ECTS. The differences in learning forms between each course explain why UPPST and UPCCP consists of 144 SKS in the Indonesian credit system, but it has a different workload using the European Credit Transfer and Accumulation System (ECTS).

Table 1. The ECTS Calculation for UPPST

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
1	MA1102	Mathematics IB	3	120.1	4.17
	FI1102	Elementary Physics IB*	3	120.1	4.17
	KI1101	General Chemistry IA*	3	120.1	4.17
	KU1011	Indonesian Language: Scientific Writing	2	80.1	2.78
	FA1101	Introduction to Pharmacy & Health	2	80.1	2.78
	FA1102	Pharmaceutical Cellular Biology	2	80.1	2.78
	KU1102	Introduction to Computation	3	120.1	4.17
		SUM		18	720.6
2	MA1202	Mathematics II	3	120.1	4.17
	FI1202	Elementary Physics IIB*	3	120.1	4.17
	KI1201	General Chemistry IIA*	3	120.1	4.17
	KU1001	Sports	2	80.1	2.78
	FA1241	Human Anatomy & Physiology I	2	80.1	2.78

E Comment of the Higher Education Institution (29.10.2020)

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
	KU1202	Introduction to Engineering and Design	3	120.1	4.17
	KU1024	English	2	80.1	2.78
	SUM		18	720.5	25.02
3	FA2141	Human Anatomy & Physiology II	2	80.1	2.78
	FA2131	Basics Pharmaceutics*	3	121.7	4.23
	FA2121	Pharmaceutical Botany*	3	121	4.20
	FA2111	Basics of Pharmaceutical Analysis	2	80.1	2.78
	FA2112	Pharmaceutical Physical Chemistry	2	80.1	2.78
	FA2113	Pharmaceutical Microbiology*	3	119.2	4.14
	FA2114	Drug Organic Chemistry	2	80.1	2.78
	KU206X	Religion and Ethics	2	80.1	2.78
	SUM		19	762.4	26.47
4	FA2242	Pharmacology & Toxicology I*	3	120.1	4.17
	FA2231	Immunology	2	80.1	2.78
	FA2221	Physical Pharmacy*	3	117.7	4.09
	FA2211	Pharmacognosy	2	80.1	2.78
	FA2212	Practicum of Pharmaceutical Chemistry	2	81.6	2.83
	FA2241	Pharmaceutical Biochemistry	2	80.1	2.78
	KU2071	Pancasila and Civic Education	2	80.1	2.78
		Elective 1	2	80.1	2.78
	SUM		18	719.9	25.00
5	FA3131	Pharmaceutical Technology of Liquid-Semi-solid Dosage Forms*	4	160.5	5.57
	FA3132	Pharmaceutical Biotechnology	3	120	4.17
	FA3141	Pharmacology & Toxicology II*	3	120.1	4.17

E Comment of the Higher Education Institution (29.10.2020)

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
	FA3111	Instrumental Pharmaceutical Analysis*	3	120.1	4.17
	FA3112	Development Validation of Analytical Methods	2	80.1	2.78
		Elective 2	3	120.1	4.17
	SUM		18	720.9	25.03
6	FA3232	Pharmacokinetics*	3	121	4.20
	FA3231	Pharmaceutical Technology of Solid Dosage Forms*	3	121.1	4.20
	FA3201	Environmental Pharmacy	2	80.1	2.78
	FA3221	Analytical Pharmacognosy*	3	120.4	4.18
	FA3241	Basic Pharmacotherapy	2	80.1	2.78
	FA3211	Practicum of Biochemistry and Bioanalysis	2	80.3	2.79
		Elective 3	2	80.1	2.78
		Elective 4	2	80.1	2.78
	SUM		19	763.2	26.50
7	FA4001	Final Project I	1	40	1.39
	FA4002	Introduction to Pharmacy Profession	2	150	5.21
	FA4111	Medicinal Chemistry	2	80.1	2.78
	FA4121	Phytochemistry*	4	161.7	5.61
	FA4101	Pharmaceutical Statistics	2	80.1	2.78
	FA4131	Biopharmacy	2	80.1	2.78
	FA4141	Communication, Drug Information, and Education	2	80.1	2.78
		Elective 5	2	80.1	2.78
	SUM		17	752.2	26.12
8	FA4091	Final Project II	5	320	11.11

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
	FA4092	Seminar	1	40	1.39
	FA4093	Final Comprehensive Examination	1	40	1.39
	FA4221	Natural Product Technology	2	80.1	2.78
	FA4231	Basic Industrial Pharmacy	2	80.1	2.78
	FA4201	Pharmacy Management	2	80.1	2.78
		Elective 6	2	80.1	2.78
		Elective 7	2	80.1	2.78
	SUM		17	800.5	27.80
TOTAL OF ECTS					206.96
* Practicum integrated into course					

Table 2. The ECTS Calculation for UPCCP

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
1	MA1102	Mathematics IB	3	120.1	4.17
	FI1102	Elementary Physics IB*	3	120.1	4.17
	KI1101	General Chemistry IA*	3	120.1	4.17
	KU1101	Introduction to Computation*	3	120.1	4.17
	KU1101	Indonesian Language: Scientific Writing	2	80.1	2.78
	FA1101	Introduction to Pharmacy and Health	2	80.1	2.78
	FA1102	Pharmaceutical Cellular Biology	2	80.1	2.78
	SUM		18	720.7	25.02
2	MA1202	Mathematics IIB	3	120.1	4.17
	FI1202	Elementary Physics IIB*	3	120.1	4.17
	KI1201	General Chemistry IIA*	3	120.1	4.17

E Comment of the Higher Education Institution (29.10.2020)

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
	KU1202	Introduction to Engineering and Design	3	120.1	4.17
	KU1001	Sports	2	80.1	2.78
	KU1024	English	2	80.1	2.78
	FA1241	Human Anatomy & Physiology I	2	80.1	2.78
	SUM		18	720.7	25.02
3	KU206X	Religion and Ethics	2	80.1	2.78
	FA2141	Human Anatomy and Physiology II	2	80.1	2.78
	FA2131	Basic Pharmaceuticals*	3	121.7	4.23
	FA2121	Pharmaceutical Botany*	3	121	4.20
	FK2141	Epidemiology	2	80.1	2.78
	FK2131	Basic Physical Pharmacy	2	80.1	2.78
	FK2111	Medical Microbiology*	3	119.2	4.14
	FA2114	Drug Organic Chemistry	2	80.1	2.78
	SUM		19	762.4	26.47
4	KU2017	Pancasila and Civic Education	2	80.1	2.78
	FA2241	Pharmacology and Toxicology I*	3	120.1	4.17
	FA2242	Immunology	2	80.1	2.78
	FK2241	Pathophysiology	2	80.1	2.78
	FK2211	Medical Biochemistry	2	80.1	2.78
	FK2212	Clinical Chemistry	2	80.1	2.78
	FK2221	General Pharmacognosy*	3	120.1	4.17
		Elective 1	2	80.1	2.78
	SUM		18	720.8	25.03
5	FK3142	Pharmacotherapy I	2	80.1	2.78
	FK3141	Basics of Hospital Pharmacy	2	80.1	2.78
	FA3141	Pharmacology & Toxicology II*	3	120.1	4.17

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
	FK3131	Basics of Pharmaceutical Dosage Form Technology*	3	120.1	4.17
	FK3111	Practicum of Clinical Biochemistry	2	80	2.78
	FK3112	Drug Analysis*	3	120.1	4.17
	FK3132	Biopharmacy & Clinical Pharmacokinetics	3	120	4.17
	SUM		18	720.5	25.02
6	FA3201	Environmental Pharmacy	2	80.1	2.78
	FK3241	Communication & Basic of Counseling	2	80.1	2.78
	FK3231	Medical Biotechnology	2	80.1	2.78
	FK3242	Pharmacotherapy II	3	120	4.17
	FK3232	IV Admixture	2	80.1	2.78
	FK3221	Phytotherapy	3	120	4.17
		Elective 2	3	120	4.17
		Elective 3	2	80.1	2.78
	SUM		19	760.5	26.41
7	FA4111	Medicinal Chemistry	2	80.1	2.78
	FK4141	Counselling & Drug Information	3	120.1	4.17
	FK4142	Basics of Clinical Pharmacy*	3	120.1	4.17
	FK4143	Pharmacoeconomics	2	80.1	2.78
	FK4001	Final Project I	1	40	1.39
	FK4002	Introduction to the Pharmacy Profession	2	80.1	2.78
	FK4101	Biostatistics	2	80.1	2.78
		Elective 4	2	80.1	2.78
	SUM		17	704.34	23.64
8	FA4201	Pharmacy Management	2	80.1	2.78
	FK4241	Evaluation of Drug Efficacy and Safety	2	80.1	2.78
	FK4091	Final Project II	5	320	11.11

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
	FK4092	Seminar	1	40	1.39
	FK4093	Final Comprehensive Examination	1	40	1.39
		Elective 5	2	80.1	2.78
		Elective 6	2	80.1	2.78
		Elective 7	2	80.1	2.78
	SUM		17	800.5	27.80
TOTAL OF ECTS					204.40
* Practicum integrated into course					

Criterion 2.4 Support and Assistance

The only weak point the peers notice in an otherwise very comprehensive advisory system is the lack of institutionalised psychological support for students.

Comments of ITB:

ITB has regulation in supporting and assistance students with psychological problem. This programme was organized by *Bimbingan Konseling (Counseling Guidance)* under supervision of Directorate of Students. There are a number of programs, such as counsellor training for lecturers, and each study program has been appointed a counsellor lecturer. Counsellor training material consist of basic counselling knowledge and also strategy to identify student whom have a psychological problem. This training aims to prevent more serious damage due to phycological problem among students. ITB also has collaboration with Melinda Hospital in Bandung in treating students with serious problem. In addition, ITB has psychological test service in collaboration with the Faculty of Psychology of the University of Padjajaran Bandung.

During the pandemic, the events are held online, for example there was a School of Pharmacy Webinar titled "My Mental Matters" at 25th of October 2020 that attended by the students of School of Pharmacy. ITB states a strong support on mental health.

Criterion 5.3 Relevant Rules

The only deficit the peers notice is the lack of a specific regulation for disability compensation. Since such a regulation does not yet exist, the peers expect ITB to draft a regulation for disability compensation of handicapped students.

Comments of ITB:

We notice that concern on the regulation for disabilities has been grown with the demand of developing sustainable campus, as it in-line with Sustainable Development Goals. ITB is apparently working on this and shall set up an ad-hoc task force to concept, propose, and improve a version of university guideline on disabilities. In addition, through the Quality Assurance Unit, ITB is now revising the *Standar Mutu ITB* (ITB Quality Standard) and will put the issue on the sustainability, including the regulation for disability compensation.

Criterion 6 Quality Management: Quality Assessment and Development

From the peers' point of view, it is necessary to close the feedback loops and to involve the students actively in the quality assurance processes. For this reason, the peers emphasise that students need to be informed about the results of the curriculum evaluations/questionnaires and possible improvements.

Comments of ITB: At present we are in the middle of improving our internal (institution) Quality Assurance system. We will definitely include students' feedback as part of loop of internal QA system at the more frequent cycle than the program loop, i.e. half-semester. The students' feedbacks are also incorporated during audience meeting between the Programs and the students. The lecturers are also encouraged to give the results of the Mid-semester exam to the students within two to three weeks-time so that the students can have the evaluation for further continuous improving them at the rest of the semester.

F Summary: Peer recommendations (09.11.2020)

Taking into account the additional information and the comments given by ITB, the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2027
Ba Microbiology	With requirements for one year	-	30.09.2027
Ba Pharmaceutical Science and Technology	With requirements for one year	-	30.09.2027
Ba Clinical and Community Pharmacy	With requirements for one year	-	30.09.2027

Requirements

For all degree programmes

- A 1. (ASIIN 5.3) Draft a guideline for disability compensation.
- A 2. (ASIIN 6) Close the feedback cycles by informing students directly about the results of the questionnaires.
- A 3. (ASIIN 6) Directly involve students in the quality assurance processes.

For the Bachelor's degree programmes Biology and Microbiology

- A 4. (ASIIN 2.2) Make sure that the awarded ECTS points comply with the students' total workload.

Recommendations

For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students and to better inform them about the existing programmes and opportunities.
- E 2. (ASIIN 4.1) It is recommended to increase the funding of the research activities.

- E 3. (ASIIN 4.3) It is recommended to improve the access to electronic literature and scientific databases.

G Comment of the Technical Committees (24.11.2020)

Technical Committee 09 - Chemistry (24.11.2020)

Assessment and analysis for the award of the ASIIN seal:

In the course of the audit, the expert group mainly dealt with the discussion points typical for procedures in Indonesia (quality assurance, academic mobility, and workload). The awarded ECTS credits and the students' workload need to be aligned. Furthermore, the expert group notes that the academic mobility of Bachelor's students is rather low and should be promoted by increasing the number of available places and scholarships, and by setting up more exchange programmes. The Technical Committee agrees with this assessment and supports the requirements and recommendations as proposed by the expert group.

The Technical Committee 09 – Chemistry recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2027
Ba Microbiology	With requirements for one year	-	30.09.2027
Ba Pharmaceutical Science and Technology	With requirements for one year	-	30.09.2027
Ba Clinical and Community Pharmacy	With requirements for one year	-	30.09.2027

Technical Committee 10 – Life Sciences (23.11.2020)

Assessment and analysis for the award of the ASIIN seal:

In the course of the audit, the expert group mainly dealt with the discussion points typical for procedures in Indonesia (quality assurance, academic mobility, and workload). The awarded ECTS credits and the students' workload need to be aligned. Furthermore, the expert group notes that the academic mobility of Bachelor's students is rather low and

should be promoted by increasing the number of available places and scholarships, and by setting up more exchange programmes. The Technical Committee agrees with this assessment and supports the requirements and recommendations as proposed by the expert group.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2027
Ba Microbiology	With requirements for one year	-	30.09.2027
Ba Pharmaceutical Science and Technology	With requirements for one year	-	30.09.2027
Ba Clinical and Community Pharmacy	With requirements for one year	-	30.09.2027

H Decision of the Accreditation Commission (03.12.2020)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission for Degree Programmes discusses the procedure and decides to follow the suggestions of the peer group and the Technical Committees.

The Accreditation Commission for Degree Programmes decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2027
Ba Microbiology	With requirements for one year	-	30.09.2027
Ba Pharmaceutical Science and Technology	With requirements for one year	-	30.09.2027
Ba Clinical and Community Pharmacy	With requirements for one year	-	30.09.2027

Requirements

For all degree programmes

- A 1. (ASIIN 5.3) Draft a guideline for disability compensation.
- A 2. (ASIIN 6) Close the feedback cycles by informing students directly about the results of the questionnaires.
- A 3. (ASIIN 6) Directly involve students in the quality assurance processes.

For the Bachelor's degree programmes Biology and Microbiology

- A 4. (ASIIN 2.2) Make sure that the awarded ECTS points comply with the students' total workload.

Recommendations

For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students and to better inform them about the existing programmes and opportunities.
- E 2. (ASIIN 4.1) It is recommended to increase the funding of the research activities.
- E 3. (ASIIN 4.3) It is recommended to improve the access to electronic literature and scientific databases.

I Fulfilment of Requirements (07.12.2021)

Analysis of the peers and the Technical Committees (23.11.2021)

Requirements

For all degree programmes

A 1. (ASIIN 5.3) Draft a guideline for disability compensation.

Initial Treatment	
Peers	Fulfilled Justification: ITB has provided the national guideline for disability compensation, which is also relevant for ITB.
TC 09	Fulfilled Justification: The TC follows the peers' assessment.
TC 10	Fulfilled Justification: The TC agrees with the suggestion of the peer group.

A 2. (ASIIN 6) Close the feedback cycles by informing students directly about the results of the questionnaires.

Initial Treatment	
Peers	Fulfilled Justification: Starting this semester, the programme coordinators discuss the feedback with the students during the annual beginning-of-the-semester meeting. In the future, students' feedback will be posted on ITB's website, with limited access to students, staff, and lecturers to ensure confidentiality of sensitive matters.
TC 09	Fulfilled Justification: The TC follows the peers' assessment.
TC 10	Fulfilled Justification: The TC agrees with the suggestion of the peer group.

A 3. (ASIIN 6) Directly involve students in the quality assurance processes.

Initial Treatment	
Peers	Fulfilled

	Justification: As a part of the quality assurance process, the Quality Control Unit (GKM) has conducted direct online-discussions with the students. In addition, the students' union will be directly involved in the quality assurance processes.
TC 09	Fulfilled/ Justification: The TC follows the peers' assessment.
TC 10	Fulfilled Justification: The TC agrees with the suggestion of the peer group.

For the Bachelor's degree programmes Biology and Microbiology

A 4. (ASIIN 2.2) Make sure that the awarded ECTS points comply with the students' total workload.

Initial Treatment	
Peers	Fulfilled Justification: ITB has updated the information about the students' total workload in all module descriptions.
TC 09	Fulfilled Justification: The TC follows the peers' assessment.
TC 10	Fulfilled Justification: The TC agrees with the suggestion of the peer group.

Decision of the Accreditation Commission (07.12.2021)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Biology	All requirements fulfilled	-	30.09.2027
Ba Microbiology	All requirements fulfilled	-	30.09.2027
Ba Pharmaceutical Science and Technology	All requirements fulfilled		30.09.2027
Ba Clinical and Community Pharmacy	All requirements fulfilled		30.09.2027

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Biology:

Intended Learning Outcomes of UPB

Students who have completed their degree from UPB will have the ability to:

1. Demonstrate an understanding of biology at the molecular, cellular, organismal, and ecological levels; and recognize its integrating principles.
2. Conduct practical laboratory and field work using standard methodologies and skills in biology.
3. Identify and solve problems in biology and broader areas by applying and integrating knowledge of biology and relevant disciplines (e.g., mathematics, basic sciences, statistics).
4. Conduct full-fledged research which includes research design; data collection, quantitative data analysis and interpretation; and results dissemination.
5. Develop scientific reasoning and the ability to make sound and responsible decisions.
6. Develop and express an appreciation for the importance of biodiversity and bio-resources.
7. Demonstrate effective oral and written communication skills, in Indonesian and English.
8. Work and learn independently as well as collaboratively in teams.
9. Demonstrate knowledge of ethics, safety, and environmental issues.
10. Demonstrate information literacy and technological fluency related to life sciences.
11. Demonstrate basic knowledge of the management of bio-resources and living systems.
12. Relate the science of biology to its application in technology and other fields to meet the needs of society.
13. Keep abreast of the latest advances in life sciences and engage in lifelong learning.

The following **curriculum** is presented:

Semester I				Semester II			
No	Code	Courses	CU/ECTS	No	Code	Courses	CU/ECTS
1	MA1102	Mathematics IB	3/4.17	1	MA1202	Mathematics IIB	3/4.17
2	FI1102	Elementary Physics IB	3/4.17	2	FI1202	Elementary Physics IIB	3/4.17
3	KI1101	General Chemistry IA	3/4.17	3	KI1201	General Chemistry IIA	3/4.17
4	KU1011	Indonesian Language: Scientific Writing	2/2.78	4	KU1001	Sports	2/2.78
5	BI1101	Fundamental Biology	4/5.56	5	BI1201	Introduction to Life Sciences and Technology	2/2.78
6	KU1102	Introduction to Computation	3/4.17	6	KU1202	Introduction to Engineering and Design	3/4.17
				7	KU1024	English	2/2.78
		Total	18/25.02			Total	18/25.02

Semester III				Semester IV			
No	Code	Courses	CU/ECTS	No	Code	Courses	CU/ECTS
1	BI2102	Animal Anatomy and Physiology	4/5.56	1	BI2201	Animal Development	3/4.17
2	BI2103	Animal Anatomy and Physiology Project	2/2.78	2	BI2203	Plant Physiology	3/4.17
3	BI2105	Genetics	4/5.56	3	BI2204	Project in Plant Science	2/2.78
4	BI2107	Plant Structure and Development	3/4.17	4	BI2208	Biosystematics	4/5.56
5	MA2082	Biostatistics	3/4.17	5	BI2209	Cell Biology	3/4.17
6	KI2051	Organic Chemistry	3/4.17	6	KI3061	General Biochemistry	3/4.17
		Total	19/26.41			Total	18/25.02

Semester V				Semester VI			
No	Code	Courses	CU/ECTS	No	Code	Courses	CU/ECTS
1	BI2001	General Environmental Science	2/2.78	1	BI3001	Research Methodology	2/2.78
2	BI3101	Ecology	4/5.56	2	BI3090	Internship	3/4.17
3	BI3102	Ecology Project	3/4.17	3	BI3207	Project in Cell and Molecular Biology	2/2.78
4	BI3105	Evolution	2/2.78	4	BI3208	Behavioral Biology	3/4.17
5	BI3112	Molecular Biology	2/2.78	5	BI3209	Introduction to Bioinformatics for Biologist	2/2.78
6	BM3111	Microbiology	4/5.56	6	XX XXXX	Elective courses	6/8.34
7	KU206X	Religion and Ethics	2/2.78				
		Total	19/26.41			Total	18/25.02

Semester VII				Semester VIII			
No	Code	Courses	CU/ECTS	No	Code	Courses	CU/ECTS
1	BI4001	Introduction to Bioethics	2/2.78	1	BI4098	Research Project II	3/4.17
2	BI4002	Scientific Communication	2/2.78	2	BI4099	Seminar and Oral Examination	2/2.78
3	BI4106	Synthetic Biology	2/2.78	3	BI4070	Bioindustry Management and Entrepreneurship	3/4.17
4	BI4097	Research Project I	4/5.56	4	XX XXXX	Elective courses	10/13.90
5	KU2071	Pancasila and Civic Education	2/2.78				
6	XX XXXX	Elective courses	4/5.56				
		Total	16/22.24			Total	18/25.02

Electives

Odd Semester				Even Semester			
No	Code	Courses	CU/ECTS	No	Code	Courses	CU/ECTS
1	BI3108	Marine Ecology	3/4.17	15	BI3203	Animal Biotechnology	2/2.78
2	BI3109	Plant Biotechnology	2/2.78	16	BI3204	Endocrinology	2/2.78
3	BI3110	Plant Microtechnique and Analysis	2/2.78	17	BI3205	Molecular Phylogenetics	2/2.78
4	BI3113	Animal Histology	3/4.17	18	BI3206	Soil Ecology	3/4.17
5	BI3114	Structure, Properties, and Use of Wood	2/2.78	19	BI4201	Environmental Impact Assessment	2/2.78
6	BI4101	Aquaculture	3/4.17	20	BI4202	Landscape Ecology	3/4.17
7	BI4102	Bioconservation	3/4.17	21	BI4203	Management of Tropical Marine and Coastal Ecosystems	3/4.17
8	BI4103	Immunology	2/2.78	22	BI4204	Urban Pest Management	2/2.78
9	BI4105	Neurobiology	2/2.78	23	BI4206	Ethnobotany	2/2.78
10	BI4107	Methodology in Biomedical Analysis	2/2.78	24	BI4207	Formulation of Growth Media and Nutrition	2/2.78
11	BI4109	Stem Cell Biology	2/2.78	25	BI4208	Plant Reproduction and Breeding	2/2.78
12	BI4110	Insect Biology and Management	2/2.78	26	BI4209	Biogeography	2/2.78
13	BI4111	Plant Specialized Metabolism	2/2.78	27	BI4210	Aquaculture Genetics	2/2.78
14	BI4112	Plants as Environmental Bioindicator	3/4.17	28	BI4211	Genomics and Proteomics	2/2.78
				29	BI4212	Basic Toxicology	3/4.17
				30	BI4213	Introduction to Protein Engineering	2/2.78
				31	BI4214	Physiology of Blood Circulation	2/2.78
				32	BI4215	In Vitro Plant Culture Technique	2/2.78

ITB Compulsory Courses

No.	Code	Course	Credit
1	KU206X	Religion and Ethics	2
2	KU2071	Pancasila and Civic Education	2
3	BI4070	Management Course: Bioindustry Management and Entrepreneurship	3
4	BI2001	Environment Course: General Environmental Science	2

According to the Self-Assessment Report, the following **objectives and learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Microbiology:

Intended Learning Outcomes of UPMb

In category of conceptual and comprehensive competence, students should be able to express understanding of the core concept of microbiology, specifically in:

1. fundamentals of biology-relevant knowledge of mathematics and natural sciences (ASIIN subject-criteria 1)
2. the relationship between microbiology with big data analysis, artificial intelligence, and computational thinking
3. the evolution of prokaryotic cells, its adaptation, survival and diversity, including its impact on the environment (ASIIN subject-criteria 2; 3; 6; 7)
4. relationship of cell structure and function (ASIIN subject-criteria 2; 3; 6; 7)
5. metabolism related to the energy and usage of materials for survival, growth and interaction with environment (ASIIN subject-criteria 2; 3; 6; 7)
6. genetic information flow and its response to environment (ASIIN subject-criteria 2; 3; 6; 7)
7. microbial system in term of diversity and dynamic ecosystem (ASIIN subject-criteria 2; 3; 6; 7)
8. impacts of microorganism in life (ASIIN subject-criteria 2; 3; 6; 7; 8)

In category of laboratory skill, the learning outcomes are that students have the ability to:

1. apply microbiological lab equipment and methods (ASIIN subject-criteria 4)
2. apply molecular lab equipment and methods (ASIIN subject-criteria 4)
3. apply safety approaches using appropriate protective and emergency procedures (ASIIN subject-criteria 5)

In category of scientific skill, the learning outcomes are that students have the ability to:

1. express scientific processes and capable to apply qualitative and quantitative reasoning to communicate and collaborate with other fields (ASIIN subject-criteria 8; 9)
2. explain the relationship between science and society (ASIIN subject-criteria 8; 10)

In category of social skill, the learning outcomes are that the students have the ability to:

1. show effective communication and team-working attitude (ASIIN subject-criteria 11; 12)
2. express the awareness and importance of long-life learning (ASIIN subject-criteria 13)

The following curriculum is presented

Table 3. Curriculum Structure of UPMB

Semester I				Semester II			
No	Code	Course Name	Credit	No	Code	Course Name	Credit
1	MA1102	Mathematics IB	3	1	MA1202	Mathematics IIB	3
2	FI1102	Elementary Physics IB	3	2	FI1202	Elementary Physics IIB	3
3	KI1101	General Chemistry IA	3	3	KI1201	General Chemistry IIA	3
4	KU1011	Indonesian Language: Scientific Writing	2	4	KU1011	Sports	2
5	BI1101	Fundamental Biology	4	5	BI1101	Introduction to Life Sciences and Technology	2
6	KU1102	Introduction to Computation	3	6	KU1102	Introduction to Engineering and Design	3
				7	KU1024	English	2
		Total	18			Total	18
Semester III				Semester IV			
No	Code	Course Name	Credit	No	Code	Course Name	Credit
1	BI2001	General Environmental Science	2	1	BM2201	Cell and Molecular Biology	4(1)
2	KU206X	Religion and Ethics	2	2	BM2201	Microbial Physiology	3
3	KU2071	Pancasila and Civic Education	2	3	BM2203	Projects of Microbial Physiology	2
4	BM2101	Basic Microbiology	4(1)	4	BM2204	Genetics and Microbial Genetic Engineering	3(1)
5	KI2051	Organic Chemistry	3(1)	5	KI3061	General Biochemistry	3(1)
6	KI2122	Analytical Chemistry	3(1)	6			
7	MA2082	Biostatistics					
		Total	19			Total	18
Semester V				Semester VI			
No	Code	Course Name	Credit	No	Code	Course Name	Credit
1	BM3104	Introduction to Bioinformatics for Microbiology	2(1)	1	BM3090	Internship	3
2	BM3101	Ecology and Microbial Evolution	2	2	BM3201	Metabolomics	2
3	BM3102	Project of Ecology and Microbial Evolution	2	3	BM3001	Research Methodology	2
4	BM3103	Microbial Biosystematics	3(1)	4	BM3202	Analytical Microbiology	3
5	BM3105	Virology	3(1)	5	BM3203	Principles of Fermentation Technology	4
6	KI3163	Introduction to Enzymology	2	6	BI4002	Scientific Communication	2
		Total	14			Total	16
Semester VII				Semester VIII			
1	BM4102	Food Microbiology	2	1	BM4070	Biotechnology Industry Management	3
2	BM4104	Microbial-Based Product Development	3	2	BM4001	Biosafety	2
3	BM4090	Final Project I	4	3	BM4091	Final Project II	3
4	BM4101	Microbial Pathogenesis	3	4	BM4092	Seminar and Colloquium	2
5	BM4103	Environmental Microbiology	3	5			
		Total	15			Total	10

According to the Self-Assessment Report, the following **objectives and learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Pharmaceutical Science and Technology:

Specifically, graduates of the UPPST should be able to:

1. explain drugs classification and mechanism of action as well as their interaction,
2. describe the characteristics of drug based on chemical structure to support all aspects in pharmaceutical science,
3. recognise physical, chemical, and physicochemical properties of pharmaceutical ingredients in relation to drug formulation,
4. describe the methods applied in drug discovery,
5. formulate and prepare pharmaceutical dosage forms,
6. conduct chemical, instrumental, and microbial analysis methods of raw materials and finished pharmaceutical preparation,
7. demonstrate production process and characterisation of natural products,
8. design formula and manufacturing process of pharmaceutical preparation,
9. determine the action, fate and path of drug based on pharmacokinetics and pharmacodynamics aspects,
10. develop the analytical methods for quality control and assurance of pharmaceutical preparations.

The following curriculum is presented:

Table 3.2. Workload per the 2019 Curriculum of the Undergraduate Programme in Pharmaceutical Science and Technology

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
1	MA1102	Mathematics IB	3	120.1	4.17
	FI1102	Elementary Physics IB*	3	120.1	4.17
	KI1101	General Chemistry IA*	3	120.1	4.17
	KU1011	Indonesian Language: Scientific Writing	2	80.1	2.78
	FA1101	Introduction to Pharmacy & Health	2	80.1	2.78
	FA1102	Pharmaceutical Cellular Biology	2	80.1	2.78
	KU1102	Introduction to Computation	3	120.1	4.17
		SUM	18	720.6	25.02
2	MA1202	Mathematics II	3	120.1	4.17
	FI1202	Elementary Physics IIB*	3	120.1	4.17
	KI1201	General Chemistry IIA*	3	120.1	4.17
	KU1001	Sports	2	80.1	2.78
	FA1241	Human Anatomy & Physiology I	2	80.1	2.78
	KU1202	Introduction to Engineering and Design	3	120.1	4.17
	KU1024	English	2	80.1	2.78
		SUM	18	720.5	25.02
3	FA2141	Human Anatomy & Physiology II	2	80.1	2.78
	FA2131	Basics Pharmaceutics*	3	121.7	4.17
	FA2121	Pharmaceutical Botany*	3	121.0	4.17
	FA2111	Basics of Pharmaceutical Analysis	2	80.1	2.78
	FA2112	Pharmaceutical Physical Chemistry	2	80.1	2.78
	FA2113	Pharmaceutical Microbiology*	3	119.2	4.17
	FA2114	Drug Organic Chemistry	2	80.1	2.78
	KU206X	Religion and Ethics	2	80.1	2.78
		SUM	19	762.4	26.41
4	FA2242	Pharmacology & Toxicology I*	3	120.1	4.17
	FA2231	Immunology	2	80.1	2.78
	FA2221	Physical Pharmacy*	3	117.7	4.17
	FA2211	Pharmacognosy	2	80.1	2.78
	FA2212	Practicum of Pharmaceutical Chemistry	2	81.6	2.78
	FA2241	Pharmaceutical Biochemistry	2	80.1	2.78
	KU2071	Pancasila and Civic Education	2	80.1	2.78
		Elective 1	2	80.1	2.78
		SUM	18	719.9	25.02

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
5	FA3131	Pharmaceutical Technology of Liquid-Semisolid Dosage Forms*	4	160.5	5.56
	FA3132	Pharmaceutical Biotechnology	3	120.0	4.17
	FA3141	Pharmacology & Toxicology II*	3	120.1	4.17
	FA3111	Instrumental Pharmaceutical Analysis*	3	120.1	4.17
	FA3112	Development and Validation of Analytical Methods	2	80.1	2.78
		Elective 2	3	120.1	4.17
	SUM			18	720.9
6	FA3232	Pharmacokinetics*	3	121.0	4.17
	FA3231	Pharmaceutical Technology of Solid Dosage Forms*	3	121.1	4.17
	FA3201	Environmental Pharmacy	2	80.1	2.78
	FA3221	Analytical Pharmacognosy*	3	120.4	4.17
	FA3241	Basic Pharmacotherapy	2	80.1	2.78
	FA3211	Practicum of Biochemistry and Bioanalysis	2	80.3	2.78
		Elective 3	2	80.1	2.78
		Elective 4	2	80.1	2.78
SUM			19	763.2	26.41
7	FA4001	Final Project I	1	40.0	1.39
	FA4002	Introduction to Pharmacy Profession	2	150.0	2.78
	FA4111	Medicinal Chemistry	2	80.1	2.78
	FA4121	Phytochemistry*	4	161.7	5.56
	FA4101	Pharmaceutical Statistics	2	80.1	2.78
	FA4131	Biopharmacy	2	80.1	2.78
	FA4141	Communication, Drug Information, and Education	2	80.1	2.78
		Elective 5	2	80.1	2.78
SUM			17	752.2	23.63
8	FA4091	Final Project II	5	320.0	6.95
	FA4092	Seminar	1	40.0	1.39
	FA4093	Final Comprehensive Examination	1	40.0	1.39
	FA4221	Natural Product Technology	2	80.1	2.78
	FA4231	Basic Industrial Pharmacy	2	80.1	2.78
	FA4201	Pharmacy Management	2	80.1	2.78
		Elective 6	2	80.1	2.78
		Elective 7	2	80.1	2.78
SUM			17	800.5	23.63

* Practicum integrated into course

According to the Self-Assessment Report, the following **objectives and learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Clinical and Community Pharmacy:

Graduates of the UPCCP should be able to:

1. describe drugs' mechanism of action, adverse reaction, and interactions, taking into account the pathophysiology of the indicated conditions,
2. explain the principle of cost-effective drug therapy and its assessment method,
3. describe the basic principle of pharmaceutical formulation, manufacturing, and quality assessment,
4. demonstrate good communication with health professionals, patients, and community,
5. conduct counselling on drug use to patients and the community,
6. perform basic compounding of pharmaceutical preparation and quality assessment of pharmaceutical product,
7. design clinical trial for new drug or formulation development,
8. select the most rational medicine based on efficacy, safety, and economic consideration,
9. organise systems for storage, preparation, dispensing and distribution of medicine,
10. organise monitoring of post-marketing drug effects.

The following curriculum is presented:

Table 3.4. Workload per the 2019 Curriculum of the Undergraduate Programme in Clinical and Community Pharmacy

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
1	MA1102	Mathematics IB	3	120.1	4.17
	FI1102	Elementary Physics IB*	3	120.1	4.17
	KI1101	General Chemistry IA*	3	120.1	4.17
	KU1101	Introduction to Computation*	3	120.1	4.17
	KU1101	Indonesian Language: Scientific Writing	2	80.1	2.78
	FA1101	Introduction to Pharmacy and Health	2	80.1	2.78
	FA1102	Pharmaceutical Cellular Biology	2	80.1	2.78
		SUM	18	720.7	25.02
2	MA1202	Mathematics IIB	3	120.1	4.17
	FI1202	Elementary Physics IIB*	3	120.1	4.17
	KI1201	General Chemistry IIA*	3	120.1	4.17
	KU1202	Introduction to Engineering and Design	3	120.1	4.17
	KU1001	Sports	2	80.1	2.78
	KU1024	English	2	80.1	2.78
	FA1241	Human Anatomy & Physiology I	2	80.1	2.78
		SUM	18	720.7	25.02
3	KU206X	Religion and Ethics	2	80.1	2.78
	FA2141	Human Anatomy and Physiology II	2	80.1	2.78
	FA2131	Basic Pharmaceutics*	3	121.7	4.17
	FA2121	Pharmaceutical Botany*	3	121.0	4.17
	FK2141	Epidemiology	2	80.1	2.78
	FK2131	Basic Physical Pharmacy	2	80.1	2.78
	FK2111	Medical Microbiology*	3	119.2	4.17
	FA2114	Drug Organic Chemistry	2	80.1	2.78
		SUM	19	762.4	26.41
4	KU2017	Pancasila and Civic Education	2	80.1	2.78
	FA2241	Pharmacology and Toxicology I*	3	120.1	4.17
	FA2242	Immunology	2	80.1	2.78
	FK2241	Pathophysiology	2	80.1	2.78
	FK2211	Medical Biochemistry	2	80.1	2.78
	FK2212	Clinical Chemistry	2	80.1	2.78
	FK2221	General Pharmacognosy*	3	120.1	4.17
		Elective 1	2	80.1	2.78
		SUM	18	720.8	25.02

Semester	Course Code	Course Title	Credits	Workload Hours	ECTS
5	FK3142	Pharmacotherapy I	2	80.1	2.78
	FK3141	Basics of Hospital Pharmacy	2	80.1	2.78
	FA3141	Pharmacology & Toxicology II*	3	120.1	4.17
	FK3131	Basics of Pharmaceutical Dosage Form Technology*	3	120.1	4.17
	FK3111	Practicum of Clinical Biochemistry	2	80.0	2.78
	FK3112	Drug Analysis*	3	120.1	4.17
	FK3132	Biopharmacy & Clinical Pharmacokinetics	3	120.0	4.17
		SUM	18		25.02
6	FA3201	Environmental Pharmacy	2	80.1	2.78
	FK3241	Communication & Basic of Counseling	2	80.1	2.78
	FK3231	Medical Biotechnology	2	80.1	2.78
	FK3242	Pharmacotherapy II	3	120.0	4.17
	FK3232	IV Admixture	2	80.1	2.78
	FK3221	Phytotherapy	3	120.0	4.17
		Elective 2	3	120.0	4.17
		Elective 3	2	80.1	2.78
		SUM	19	760.5	26.41
7	FA4111	Medicinal Chemistry	2	80.1	2.78
	FK4141	Counselling & Drug Information	3	120.1	4.17
	FK4142	Basics of Clinical Pharmacy*	3	120.1	4.17
	FK4143	Pharmacoeconomics	2	80.1	2.78
	FK4001	Final Project I	1	40.0	1.39
	FK4002	Introduction to the Pharmacy Profession	2	80.1	2.78
	FK4101	Biostatistics	2	80.1	2.78
		Elective 4	2	80.1	2.78
		SUM	17		23.63
8	FA4201	Pharmacy Management	2	80.1	2.78
	FK4241	Evaluation of Drug Efficacy and Safety	2	80.1	2.78
	FK4091	Final Project II	5	320.0	6.95
	FK4092	Seminar	1	40.0	1.39
	FK4093	Final Comprehensive Examination	1	40.0	1.39
		Elective 5	2	80.1	2.78
		Elective 6	2	80.1	2.78
		Elective 7	2	80.1	2.78
		SUM	17		23.63

* Practicum integrated into course